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Macworld

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20 years of the Mac

1984-2004: 20 years ago Apple revolutionized the world with its computer 'for the rest of us'. Macworld looks back on a remarkable history.

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Simon Jary
editor-in-chief

Just 20 years ago, every personal computer had a green or amber screen, and no mouse. Remember that?

Mac's score draw

A man has recently awoken from two decades in a coma. According to his family, 39-year-old Terry Wallis's entire frame of reference is stuck in 1984. He thinks Ronald Reagan is still the US president... but then maybe so does Ronnie. Terry was only 19 when a serious car accident plunged him into a coma – not long after he and his wife had celebrated the birth of their baby daughter. She may now be listening on an iPod to the same music that Terry was buying on vinyl: Madonna, U2, and Michael Jackson (or maybe not...) are still going strong. You can even buy 1984 chart-toppers Kenny Loggins and Phil Collins on Apple's iTunes Music Store.

It's almost impossible to remember what it was like before Apple brought the graphical user interface into the public consciousness.

While Terry will be able to get to grips with the iPod pretty quickly, when he sees it plugged into a computer he's going to freak – "What the hell is that?!". "And what do you do with this?," he'll gasp when picking up the mouse. It is indeed remarkable that the personal computer as we know it today has been around for only 20 years. Before 1984 PCs had command-line interfaces with green or amber screens.

Apple changed all that in January 1984 when it introduced the first Macintosh personal computer. To say that it broke the mould is an understatement. To call it revolutionary doesn't do it justice. Here was something so different that it is rarely even referred to as a PC. Even now, it's PC or Mac. Of course, today's Windows or Linux PCs don't look too different from Macs. They don't look as good, and they aren't as intelligently designed, but they are both the same basic shape – except for Apple's latest all-in-one consumer computer, the LCD iMac, which goes to prove that the company hasn't stopped looking for the best solution in a generally retarded industry.

It's easy to recall 1984. The top grossing movies were Ghost Busters, Beverly Hills Cop, Indiana Jones and the Temple of Doom, Gremlins, and The Karate Kid. Prince was at the top of the charts with When Doves Cry, Tina belted out What's Love Got To Do With It, and Lionel sang Hello. This is recreated at School Disco events and endlessly replayed on satellite movie channels. Yet it's almost impossible to remember what it was like before Apple brought the graphical user interface (GUI) into the public consciousness.

There have been many technological advances in the past 20 years, but few have entered our lives with as much simple effect as the mouse-controlled GUI computer. The Internet was around long before 1984, but it was the GUI and then the World Wide Web that made it such an influence today. George Orwell's 1984 was a frightening place of totalitarianism and lack of personal control. The possibilities of the Web are the very antithesis of Orwell's vision of Big Brother. The Internet is our deadliest weapon against dictators and one-view histories.

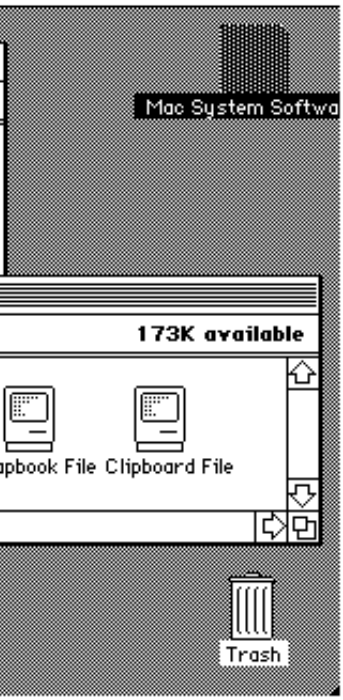
When Terry logs on to the Web, he might be surprised that the Cold War has turned into a battle against extremist terror. But he'll marvel more at the opportunity to send his own videos digitally across the world in seconds, iChat with family, download albums and carry hundreds of them round with him in a tiny white case, and print high-quality photos inexpensively in his own house (without a gallon of chemicals and the curtains drawn).

It could be argued that Apple was in a coma itself for several of its 20 years of Mac making. Certainly, Microsoft took Apple's lead and ran off with the market all too easily. Apple spent too much effort suing other GUI OS developers, and not enough working with third parties. For all the moaning about Microsoft's proprietary technologies that are the foundations of its monopoly, Apple too was arrogant enough to believe only it had the brains, wherewithal and right to develop the techs the Mac required. Licensing the Mac OS was done way too late, cannibalizing rather growing Apple's market. And when it had run out of ideas and saw Windows' growing dominance, the company couldn't even sell itself to an army of suitors.

Despite the revelation that he initially tried to stop the Macintosh project, it's undeniable that Apple co-founder Steve Jobs plays a pivotal role in Mac's history – alongside the 19 other 'Most important people in the Mac's history' that we've gathered together in our special anniversary feature, and a bunch of unsung heroes (and villains). Remarkably he probably wasn't a Mac user for three fifths of the Mac's first 20 years. After leaving Apple in 1985, he set-up NeXT, and used that company's computers until he returned triumphant and $430m richer in 1997 having sold NeXT to Apple the previous year. But in the six years since, Apple has turned round from being a rapidly fading star into the recognized world leader in computer innovation again.

In 1984 the Macintosh dragged the mouse out of a long development hibernation and eventually onto the desktops of nearly every computer user on the planet. The Mac was the first computer to offer Ethernet networking as standard across the range, and the first to offer a CD-ROM as a built-in option. The PowerBook was the first successful laptop. Apple's QuickTime ushered in an era of multimedia, and FireWire enabled a generation of fast and affordable digital camcorders. Apple has recently pioneered wireless networking as a standard feature, and has virtually created a new way of distributing and listening to music.

The world that Terry Wallis has woken up to – despite the continuing presence of Kenny Loggins – is a quite different one than that which he remembers. A whole lot of that positive change and opportunity is thanks to the Mac and its extraordinary influence on technology and the ways we live our lives today. Windows wears the GUI crown, but it was Apple and the Mac that did the championing. And that's why 2004 isn't much like 1984 at all, as Terry is no doubt discovering right now. MW



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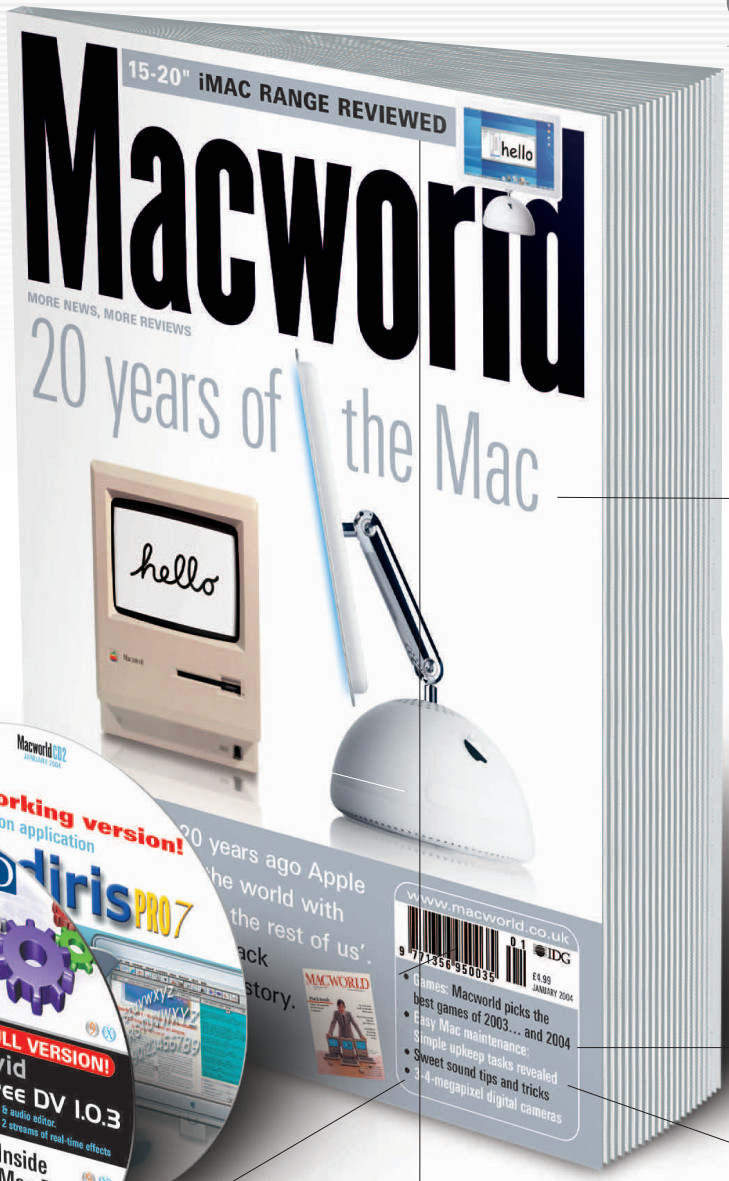

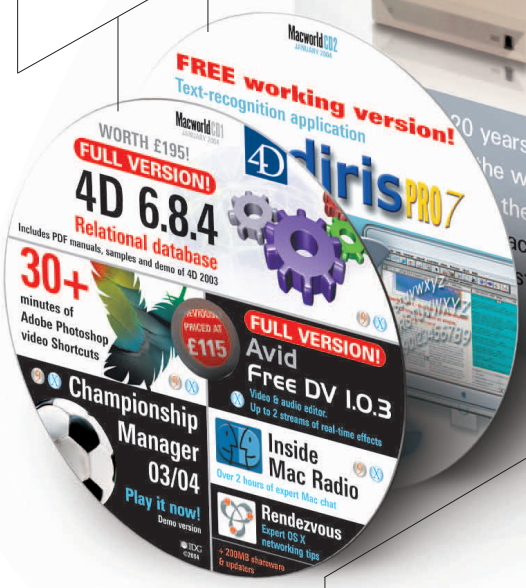

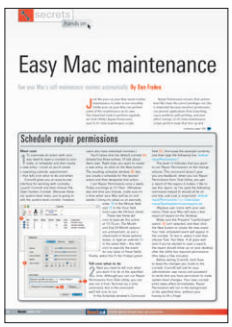

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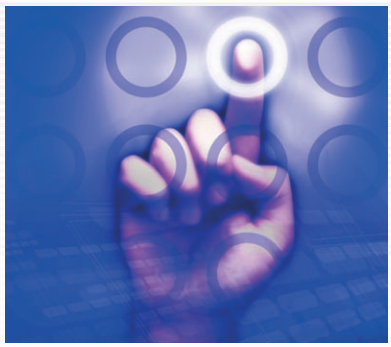

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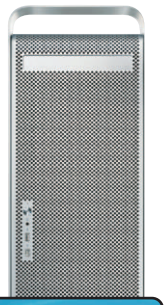

295 Macworld's advice for readers buying a Power Mac, iMac, iBook, eMac or PowerBook G4. A full listing of our acclaimed hardware product reviews and group tests for the previous 12 months, with features index and detailed buying advice.

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December 19, 2003:
Paul Hooper spends time with famed Googlewhacker, stand-up comedian and Mac user Dave Gorman.

December 26, 2003:
Stuart Wilkes of Mac consultancy Iscentia advises small and large businesses how to manage the move to Mac OS X.

January 2, 2004
Macworld news editor Jonny Evans on Apple's achievements in 2003, and the year ahead.

January 9, 2004
Nick Spence on the ever-increasing importance of Apple's notebook products to Liverpool School of Art and Design across a wide range of creative subjects.

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"Everything you think you know about colour management is wrong," says Alistair Dabbs in his passionate argument that designers should dump CMYK-based workflows in favour of RGB.

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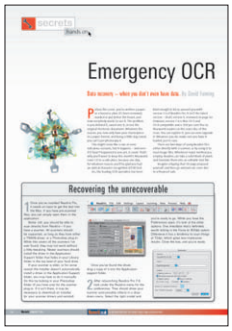

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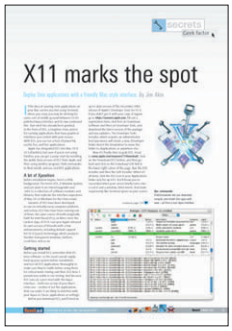

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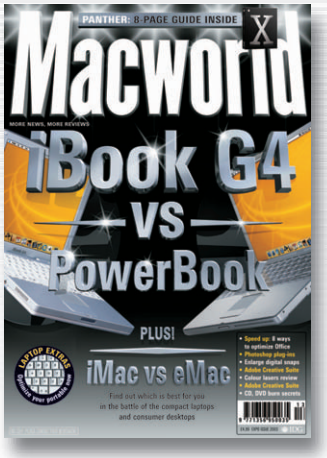
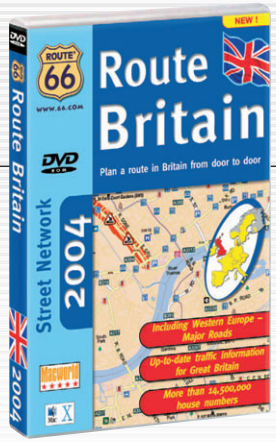
cc: Macworld letters





Your letters win top software each month

Tell us what you think, and you could win a great prize if we publish your letter. This month, courtesy of Softline distribution, we reward readers' letters with a copy of ***Route 66 Britain 2004 DVD*** *(worth £29.99), which is more than just a route planner for all your business and private journeys efficiently. It contains more than a million towns, cities and streets in Britain, 70,000 points of interest in over 40 categories such as hotels, restaurants and petrol stations. Email: letters@macworld.co.uk. Please provide full name and contact details.*

(Letters received without a name and address will not receive a prize.)

⌘ Tomorrow people

Simon Jary's editorial in the October 2003 issue of Macworld struck a sour note when he suggested that "keeping up to date is an essential part of our relationship with technology".

As a technologist I normally would agree, but in this case I feel he has left out some important factors in the consideration – such as the cost of training and the familiarization period when output is lower. There's always a balancing act between evaluating the new products and determining when to invest to stop falling behind.

Upgrading to OS X is not a simple matter. Having spent on the hardware upgrade, you're forced into deciding if the only way to make use of the increased power is to spend a significant sum on software upgrades and peripherals to replace incompatible software and hardware.

Bryan Pannett

⌘ Not a new customer now

I have only ever used IBM-type PCs. Recently, after reading Macworld, I became interested in the Power Mac G5. I found three Apple resellers in Oxford. I telephoned each one, but to my astonishment, I met with overwhelming indifference. Not one had a G5 to demonstrate. None bothered to ask whether I was a home user or business buyer. One representative spoke to me on the assumption that I was not only computer illiterate but stupid, to boot. The comparison with the enthusiastic encouragement and assistance I received when I made purchases some years ago could not be more marked. Perhaps Apple is so successful in the UK that it has no need of new customers?

D R Bright

⌘ Apple Store woe

Don't buy from the Apple Store unless you know how to speak Apple double-talk. "Build time: 1-2 days" translates in English as "One-two weeks". "Express Delivery" actually means "A round-the-world trip taking nine days".

Calling a nine days "express delivery" is just outright lying.

Kenny Millar

■ *See News, page 26*

⌘ 1.8GHz G5 fury, pt 1

Having only just having bought a 1.8GHz Power Mac G5 28 days ago, I was angry to discover that less than a month after this purchase that Apple has – without any prior warning – released a dual-1.8GHz model. The £50 price difference between the new model and my machine is negligible considering the specifications.

I feel as if I have been misled, since it's under three months since the single-processor models were released. I'm very angry about the way that Apple has behaved in this instance, particularly as I have just got off the phone to a very unhelpful woman in Apple Customer Services, who didn't seem to give a damn. Great way to keep a small customer base...

Richard Jenkins

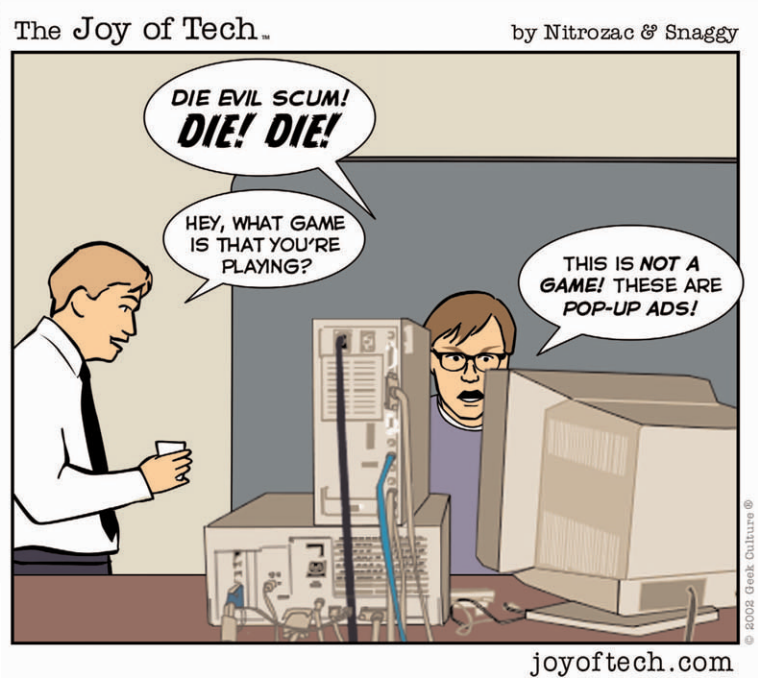
⌘ 1.8GHz G5 fury, pt 2

I am absolutely shocked with Apple's latest retail move. I couldn't believe my eyes when I saw a Dual-1.8GHz appear on the Apple Store Web site, and then stunned to see the price-tag of £1,899 inclusive of VAT. I was one of the mugs who had just spent £1,849 on a new single 1.8GHz G5, less than two months ago.

Surely no one believed that there would be such a huge change in the G5 lineup so quickly.

I feel cheated and disgusted by a company that I had always respected. In the past I have had a 9600, G3 and a G4. Now I am an owner of a seemingly overpriced and already discontinued 1.8GHz G5. Thanks, Apple.

Gareth Evans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⌘ Branch out, Apple

I've always loved the seamless styling of Apple, the sleek stainless steel and the glacial white casings. But the beautiful atmosphere of the office is spoilt by the big, greasy monstrosity that is an inkjet printer. Please Apple, produce top-notch printers to go with your amazing products. Apple has proven its worth in the world of accessories with the iPod.

Brad Clark

⌘ Index footnote

It would be most helpful if you could include an index of your software CDs that gives some short description of what the applications actually do. Many of the application names are not descriptive of their function, so any installation is a lottery.

Robin Harris

MW: *We do try to describe the main items on each Macworld CD, but with nearly half a million files on our CDs so far, we simply don't have to space to explain every single piece of software. We will however try to squeeze as much explanation into the CD pages as possible.*

⌘ iBook to PowerBook hack

I bought a 12-inch PowerBook in the summer, and am now seeing an iBook with almost equivalent specs for £450 less than I paid. Never mind, one of the reasons I bought it was for the monitor-spanning feature.

I like to work on digital-photography images on a CRT monitor. With the PowerBook I can do this at a different resolution from that on the laptop's screen – whereas with the iBook I can only mirror the built-in display at a 1,024-x-768-pixel resolution.

Not so, it seems. Using the OF Hack, it's possible to change the iBook's firmware to allow monitor-spanning on the iBook. The suggestion is that the graphics card has this capability, but is disabled in firmware on the iBooks – possibly to create a distinction between the iBook and PowerBook.

I don't know the legal position regarding using this hack. Would it invalidate the Apple warranty?

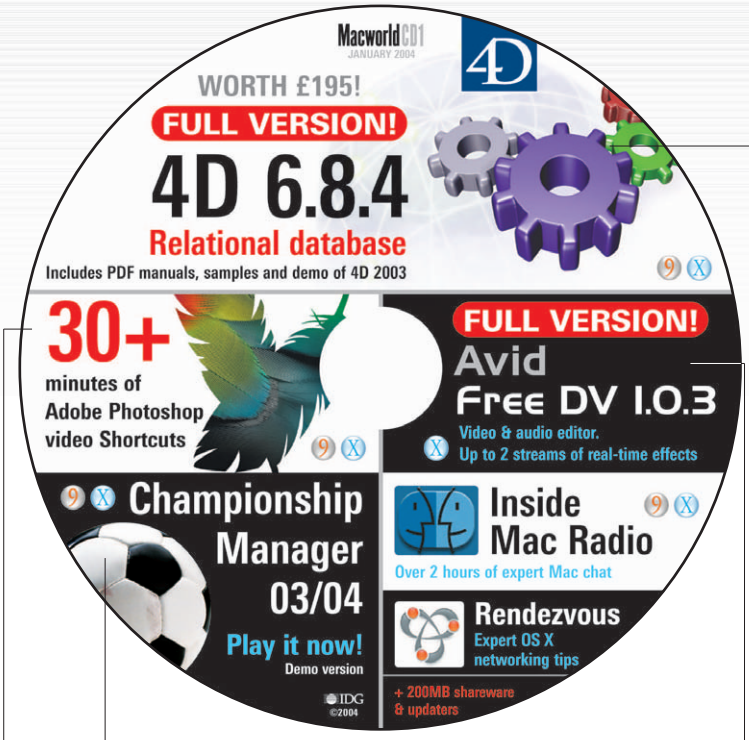
Here's a link to a page on XLR8YourMac about the OF Hack: www.xlr8yourmac.com/systems/ibook_dual_display_mods.html.

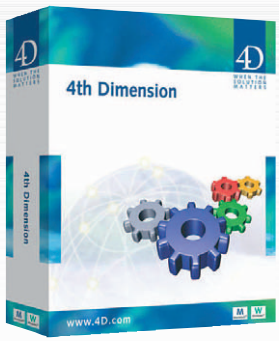
Tom Burke **MW**

Macworld.co.uk Join in the live IT debates on Macworld Online Forum (www.macworld.co.uk/forums).

The full version of 4D 6.8.4 heads up a jam-packed first CD that includes Avid Free DV, lots of tutorials and a half-season demo of our favourite footie game, Championship Manager. Over to Vic "Barnet forever" Lennard...

MAIN ITEMS



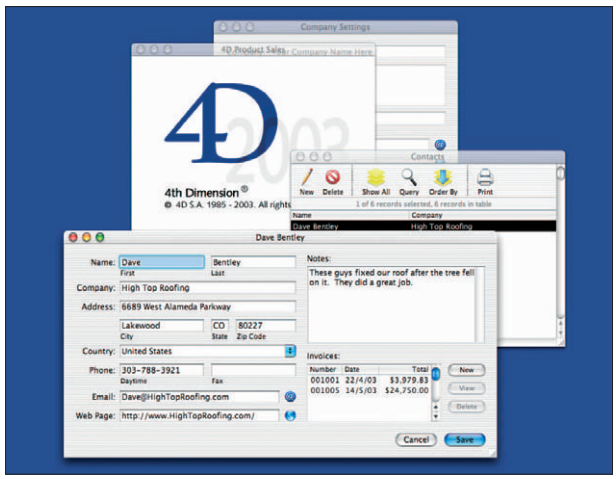


4D 6.8.4 FULL VERSION

4D is an award-winning database development suite of tools that is ideal for developing and deploying powerful, scaleable and robust database solutions on Windows and Mac. Applications built in 4D can be deployed in standalone and client-server environments as well as on the Web. With 4D you can build any database solution imaginable quickly and efficiently – from accounting and project management systems to online catalogues and sales and marketing solutions.

Quite literally if you can think it, you can do it with 4D. Includes PDF manuals, samples, and a demo of 4D 2003.1.

To obtain the licence code for this full version of 4D 6.8, go to **www.4duk.com/macworld.html**



Photoshop Show

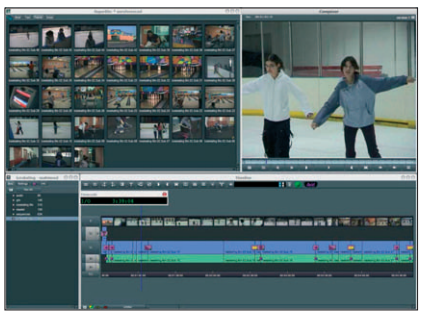
Russell Brown brings his energy and creativity to *The Photoshop Show Starring Russell Brown*, a new book from Adobe Press and Peachpit.

These four samples from the companion CD highlight some powerful methods for common tasks, such as creating a top-notch mask in just seconds!

CM 4.1.1 03/04 demo

What can we say? It's a game of two halves – and you get to play the first half of the season with this great demo. Choose a team, pick your players and their tactics, and then endure the nailbiting 90 minutes watching them from your Mac's equivalent of the touchline. Win or lose, you're going to get high entertainment value.

They think it's all over – it certainly isn't!



Avid Free DV 1.0.3

Avid Free DV software is an easy, free way to join the Avid family by test-driving the industry-standard editing interface. It's a feature-streamlined, stand-alone program that includes basic video and audio editing capabilities, and up to two streams of real-time effects.

Requires Mac OS X 10.2.4 – 10.2.8 running on a 667MHz or faster G4.

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Cover CD1

JANUARY 2004

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INSTALL

Before you start working your way through the software on our CD, go to the System Utilities folder and make sure you install the following:

Adobe Reader 6 (OS X only)
Install this to be able to read many of the on-screen manuals. Acrobat Reader 5.1 also available.

StuffIt Standard
Installers for StuffIt Standard 7.03 (Mac OS 9) and StuffIt Standard 8 (Mac OS X) are included.

QuickTime 6
Some programs require QuickTime 6. This can be downloaded from www.apple.com/quicktime/download.

INSIDE MACWORLD & SERIOUS SOFTWARE

ALAP trials

A Lowly Apprentice Production is renowned for its QuarkXPress XTensions. Try XPert Align 2.1, XPert Layers 2.1 and XPert Scale 2.1 for 30 days. Trials.

Fracture

Mac OS X screensaver that creates a wide variety of fractal images. It can make images using advanced fractal imaging techniques. Shareware.

Painter's Picker

An extension to Mac OS X's colour picker panel. Adds the ability to choose related colours with more precise controls over saturation, hue angle and brightness. Shareware.

SnapMail 4.1

The complete messaging and communication application for the Mac office via TCP/IP networks. Thirty-day demo.

Demos/trials include...

Adv Effect Maker FE 1.0
At Your Service 1.0
BBEdit 7.1 update
Boinx iStopMotion 1.1.1
Browser Service1.0
DEVONthink PE 1.7.2
IceCoffEE 1.4
iTunes Library Manager 3
MIDIGraphy 1.4.3
Raw, Simodifier 2.0
Terminal Services 1.0
Translation Service
WebDesktop 2.0
Word Service 2.5.1

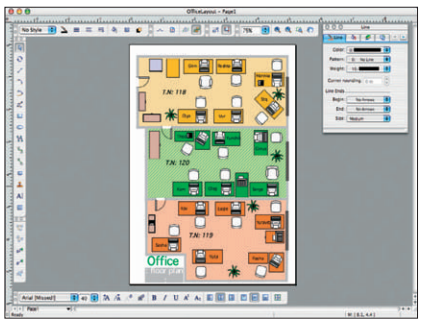
Descender 1.2

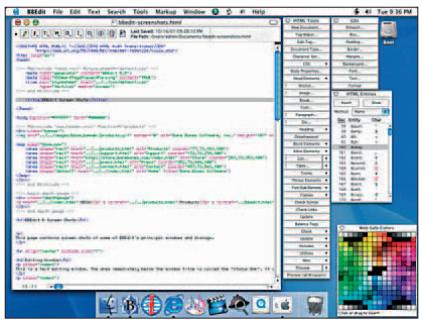
Tetris-style game with one-player puzzle-crunching action and two-player battle mode. Shareware.

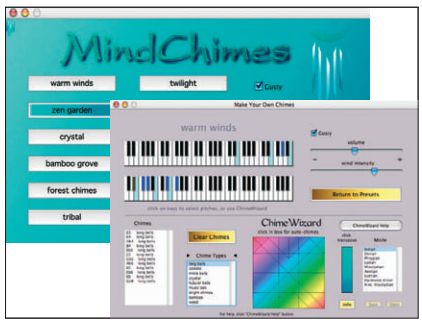
CD CATALOGUE

Courtesy of Mark Pirri's superb DiskTracker program, Macworld brings you a searchable catalogue of all our CDs from 1997 to 2003 – over 425,000 files! This will grow month by month to allow you to find any file you want, without wearing out your CD-ROM drive. The latest version of DiskTracker (2.3) is also included – don't forget to register if you find our library useful.

OTHER MAIN CD ITEMS







ConceptDraw V Pro

ConceptDraw V is a new standard in business and technical drawing. Powerful drawing tools, extensive libraries with pre-drawn shapes, and support for many graphic formats enable users to develop and express ideas visually in any combination of drawings, diagrams and charts.

Improvements and additions include a new interface, a new graphics engine that supports anti-aliasing and WYSIWYG text editing, a built-in scripting language, new shapes, automatic document save, support for Unicode-based fonts, a new document structure, enhanced PowerPoint import/export, and more.

Try the full package for 30 days.

BBEdit 7.1 trial

BBEdit is a high-performance HTML and text editor. It's also an excellent general purpose text tool, finely tuned for the specific needs of Web authors and software developers.

Version 7.1 has a number of new features including 'Preview in BBEdit' menu command, support for file transfers using SFTP (the SSH File Transfer Protocol), and FTP and SFTP server discovery using Rendezvous. It can also configure multiple Web sites, has redesigned Sort Lines and Process Duplicate Lines plug-ins, a new Close Current Tag command, and much more.

Fully compatible with Mac OS X 10.3. Try the full package for 30 days.

MindChimes demo

MindChimes is much more than just a sound effects program – it simulates the natural rhythms and organic patterns of true wind chimes and never plays exactly the same way twice. This natural randomness will help you feel more relaxed and concentrate better.

The realism and quality of the chime sounds and wind patterns were treated with particular care. There are nine different sounds available, from bells to crystal glass to bamboo. Only the QuickTime instrument patches that gave a believable and high quality chime sound were chosen.

This 30-day demo version will quit after eight minutes of use.

Cover CD1

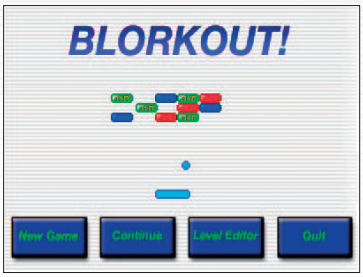
JANUARY 2004

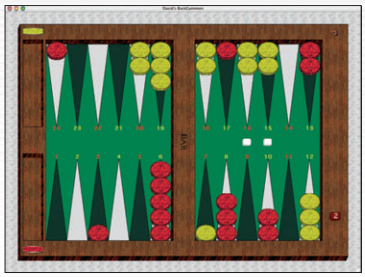
FAULTY COVER CD-ROM?

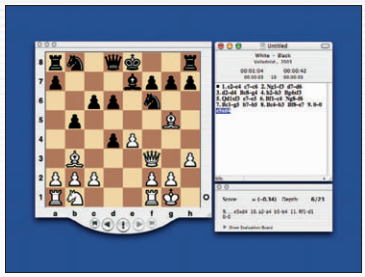
- If your cover disc is broken, please contact Minesh Patel, on 020 7831 9252, or email at mineshp@macworld.co.uk for a replacement.
- If your cover CD doesn't seem to work as it should, please check you have read all the instructions on the cover disc pages carefully first. If it still doesn't work, then please email cd@macworld.co.uk
- Drag installer files from the CD to your desktop before clicking on them.

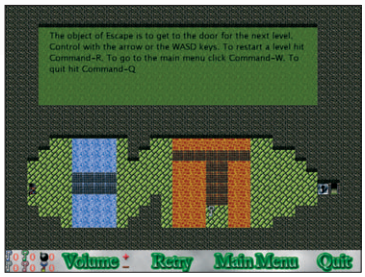
GAMES WORLD

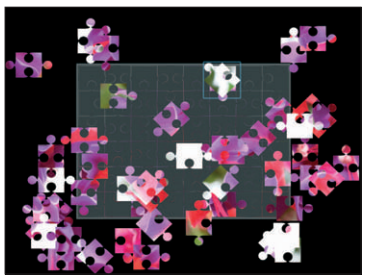
DEMOS & GAMES











Arcade, board and strategy games – this month's Top 10 Shareware Games has a nice mixture of all three.

On the arcade front there's Armagetron 0.2.6.0, a high-speed Tron bike-a-like, the mini paddle-bashing Blorkout 1.0.0, and the ball-avoiding BoundSea.

If you like playing board games then check out the latest incarnations of David's BackGammon (4.8.1) and the jigsaw puzzler, JiXii, plus Vektor3 3.2.1, one of the best chess games on the Mac.

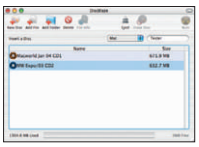
For strategists there's Escape 1.6.5a, BoXiKoN, and a neat Tetris clone in Quinn. Finally, there's the quite unique Spin Crisis, a fabulous rotational ball game.

(Top row) Blorkout; David's BackGammon; Vektor3
(Middle) Spin Crisis; Escape
(Bottom) BoXiKoN; JiXii

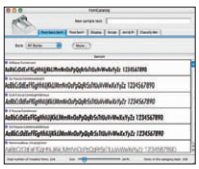
MAC OS X/9 SHAREWARE & UPDATERS

Over 180 useful programs, all subdivided into categories, including:
Absird 1.2
Address Book Importer
Address-o-sync
Amazing OS X 2.6.2

AppleToOranges 1.1.2
Archive 5.1.3
Auctioneer 1.1
AutoPairs 2.1.2
BuzZer 0.2.2
CandyBar 1.6.1
Classic Menu 2.7.2



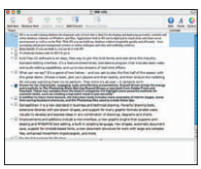
DiscBlaze 2.0
Doublet Scan 10.1.0
DVBackup 1.1.5
Exif Untrasher
FileSynchronization 1.2.4
Flash AV players
Fontabulator 2.0



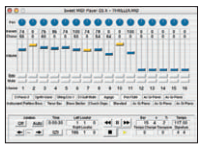
FontCatalog X 1.2.1
FR-PhotoStudio X 1.6.3E
FUSKey
Hackposé 1.1
Hermes
HimmelBar
ICeCoffEE 1.4
IconBuilder 4.1

IconCompo
IconizerProX
IC-Switch 1.3
iEnable 2.1

Impression 1.8
iSparx 1.2
JunkBroom
Logorrhea 1.2.2
Mac Sweeper 1.5
MailPictures 2.4
MemoryStick 1.3
MoreClocks 3.1.3
More iChat Smileys 2.1
MoreInternet 1.1.1



OmniOutliner 2.2.6
PDF plugin 1.2.3
Prefling 2.0
QuickAccessCM 1.5.3
Serial Mail 1.3
SharePoints 3.3.0



Sweet MIDI OS X 2.0.6
The Blob 1.0
TransparentDock 2.2
UnCoverIt 2.0.1

UPDATERS

This month's dedicated updaters folder includes over 40MB of patches to bring many popular applications bang up-to-date, including:
Corel Painter 8
FontDoctor X 5.5.3
Formac Devideon 2.6.1
NAV 7/8/9 (Nov 03)
Universe Animator 5.0.5
Vicomsoft FTP Client Upd
Virex OS X (Nov 03)
VirusBarrier X 10.1

DON'T MISS…

Cool Extras

Four new sets of icons just for Mac OS X!

- 23 excellent smilies from tab@designmood.com
- Six pizza icons plus 11 toppings (I kid you not!) from Tom Woodhams

Mac ISP

Access offer from Moose Internet Services.

Netscape/Internet Explorer/Opera

Netscape X 7.1, IE X 5.2.3, IE 5.1.7 & OE 5.0.6, and Opera 6.0.3

Plus…

… many thanks to Simon Youngjohns (youngjohns@hotmail.com) for our CD icons.

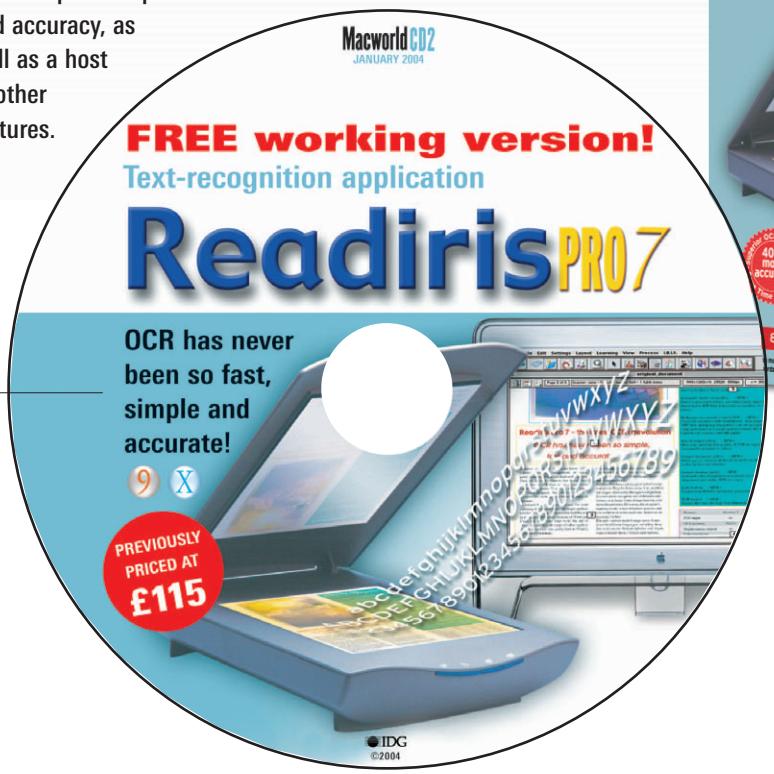
SHAREWARE

Association of Shareware Professionals

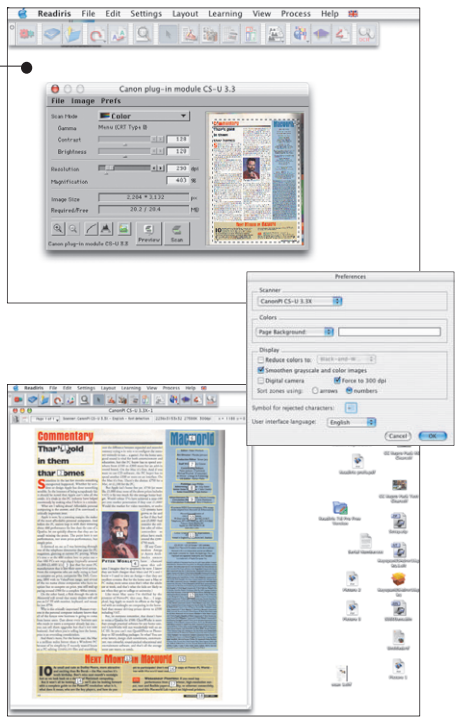
Shareware is a distribution method, not a type of software. It makes fitting your needs easier, as you can try before you buy. Shareware has the ultimate money-back guarantee – if you don't use the product, you don't pay for it. If you try a Shareware program and continue using it, you are expected to register. Support shareware authors so that they continue to provide high-quality programs for the Mac.

Readiris PRO 7

On this month's second CD we have the full version of leading OCR (optical character recognition) software Readiris Pro 7.6, as well as a 30-day demo version of Readiris Pro 9. Both versions run on Mac OS X and in Classic, but version 9 offers improved speed and accuracy, as well as a host of other features.



OCR - TEXT RECOGNITION
Readiris PRO 7
NEW!
More than 100 new and improved features!
OCR has never been so fast, simple and accurate!
Converting Documents to Electronic Formats
40% more accurate
30% faster
8 million users work with Readiris Pro
www.irislink.com



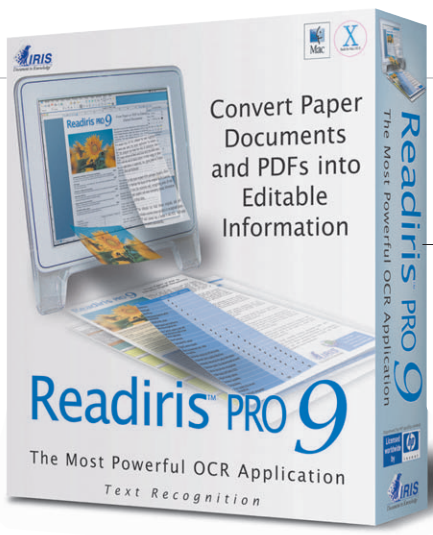
Get Readiris Pro 9 for just £69!

Not only is Iris offering version 7.6 for free, but it is also offering Macworld readers a special upgrade discount of £69, instead of the normal £82. To take advantage of this offer contact Widget on 0800 138 1639, or visit **www.widget.co.uk**.

■ See page 62 for an in-depth review of Readiris Pro 9, and page 110 for a guide on how to save lost documents using Readiris Pro 7.6.

What's new in Readiris Pro 9

Improved speed, accuracy, page orientation, and OCR engine; up to 104 languages recognized; ability to open PDF files – even read-only files; new image output, user interface and colour thumbnails


Convert Paper Documents and PDFs into Editable Information
Readiris PRO 9
The Most Powerful OCR Application
Text Recognition

Minimum Specs for Readiris Pro versions 9 and 7.6: Mac OS 9, OS X, PowerPC processor, or better.

MacExpo 'best ever'

While other IT trade shows report a downswing in attendance, the UK Mac community remains buoyant, with this MacExpo again breaking attendance records.

The event – staged at Islington's Business Design Centre from November 20-22 – attracted 22,844 visitors over three days, with organizers saying this was a "sparkling result in a difficult market".

Showgoers faced many difficulties and distractions over the three days, including an anti-Bush demonstration, poor weather, and England's victory in the final of the Rugby World Cup. Attendance, though, was up by 600 on last year.

The event offered an expanded schedule of masterclasses and seminars, which attracted 1,784 visitors. A presentation by Adobe's senior creative director Russell Preston Brown emerged as the personal show highlight for many.

Many opening-day visitors braved rain to queue from the early hours to secure early entry. One of these was 17-year old A-level student Jonathan Blackmore, from Tipperary in Ireland, who said: "I love Macs and Apple because they're cool, reliable and the design is brilliant."

London-based Graphic designer Jane Crawford, 23, was another early bird. She said: "I'm here to take a close look at Creative Suite products." Another graphic designer Martin Smith, 33, was aiming to test QuarkXPress against InDesign: "In my business it's essential that I invest in the applications that will form the backbone of tomorrow's publishing industry."

Show visitors were met by the sight of Apple's huge stand, and a huge banner reading: "Mac OS X Panther – evolution of the species."

Many of those visiting Apple's stand were considering the move from Mac OS 9 to OS X. Photographer Aletta Killin said: "I haven't upgraded to OS X because I was waiting for the software I use to be upgraded. Now the applications are there, I think it's time to upgrade."

'We did more business on the first day than during the entire event last year' Apple Financial Services UK and Ireland sales director Jon Singleton

Other major attractions were the 20-inch G4 iMac and the dual-1.8GHz G5 Power Mac, both of which were launched two days before the show.

Banker Richard Herschy said: "The G5 was definitely the highlight of the year for Apple, it's a fantastic machine." Graphic designer Peter Smith praised Apple for "coming up with innovations every year that make it easier to do the work we do".

Apple Financial Services UK and Ireland sales director Jon Singleton revealed that the company "did more business on the first day of the show than it did during the entire event last year".

Other companies to launch products at the show included Epson, HP, FileMaker, Microspot and CS Odessa launching ConceptDraw (see page 37).

Event director Bob Denton said: "Apple has been tremendous this year. As well as attending the show It took over Islington's Angel tube station, with iPod ads everywhere, big banners outside and iPod posters mentioning MacExpo.

"MacExpo has its own charm. Visitors know what they want and why they're here. I think it's a nice show."

Apple UK managing director Mark Rogers said Apple was "very happy" with MacExpo's showing: "We'll look at whether the format and location is right in future, but we're really happy. It's a good show, and an important one to us."

Denton agreed: "We understand how to work together quite well."

.Mac bolstered

Apple has again improved the package it is offering to .Mac subscribers.

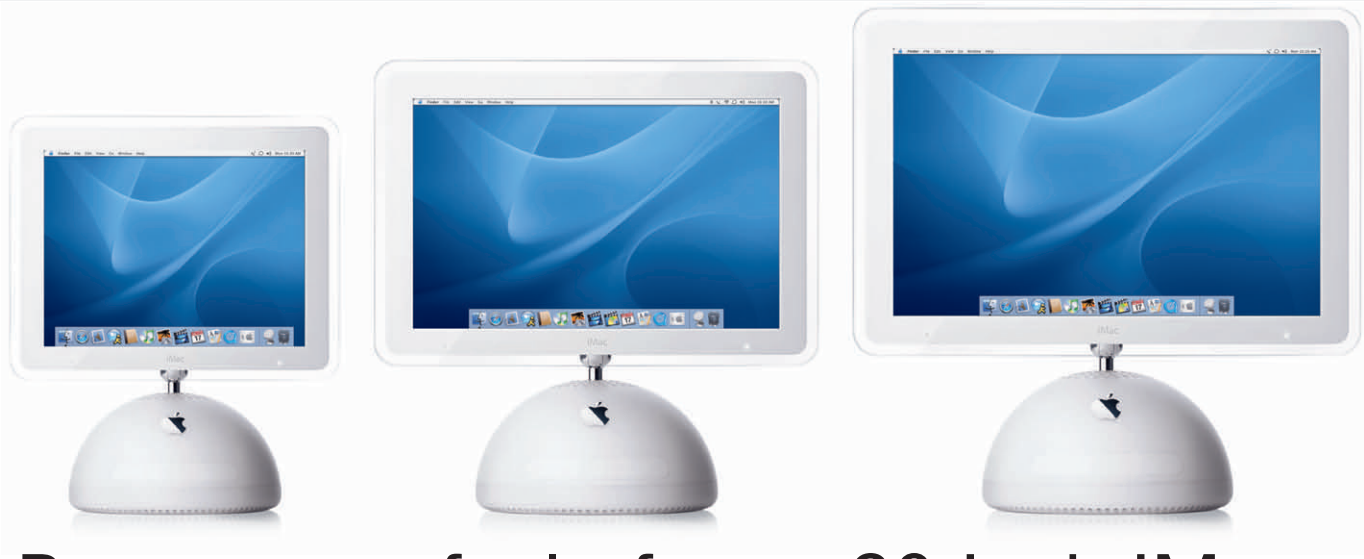
The latest bonus offers include a training resource and a collection of iMovie sound effects from Skywalker Sounds. These are available through a brand-new Members Only folder that appears in iDisk – allowing members to drag-&-drop new software directly to the desktop.

Also on offer are thousands of AAC-format music tracks from Freeplay Music.

The training components include a guide to the iLife applications in the form of 36 movies for basic and advanced topics.

The improvements to the .Mac package seems to be having the desired effect, as Apple CEO Steve Jobs told analysts in November that 86 per cent of subscribers have signed up for another year of .Mac.

say organizers, exhibitors and showgoers



Punters get feel of new 20-inch iMac

Apple used MacExpo 2003 to give the UK public its first glimpse of the 20-inch iMac. The 1.25GHz iMac costs £1,749 (including VAT) and supplements Apple's existing 15- and 17-inch iMacs. Apple claims that its new 1,680-x-1,050-pixel 20-inch iMac offers "almost twice" the screen area of the 15-inch iMac. It ships with Mac OS X 10.3 Panther pre-installed.

Apple's senior vice president worldwide product marketing Phil Schiller said: "The new iMac builds a design that remains unmatched in the industry. By offering a huge, gorgeous 20-inch widescreen display, Apple has once again raised the bar on what customers can expect from an all-in-one desktop."

It's equipped with two FireWire 400 ports and three USB 2.0 ports. It's Airport Extreme-ready, and customers can choose Bluetooth compatibility as a £35 build-to-order option. The new iMac includes a 4x SuperDrive (DVD-R/CD-RW) optical drive.

Other features include 256MB RAM, an 80GB, 7,200rpm hard drive, and an NVidia GeForce FX 5200 Ultra graphics processor with 64MB of DDR video memory The software bundle includes iTunes 4, iPhoto 2, iMovie 3 and iDVD 3.

In an interview with Macworld, Greg Joswiak, Apple's vice president of hardware products worldwide product marketing, said the 20-inch iMac is a "boundary product" that appeals to both consumers and professionals – and that the it has attracted a lot of attention from professional users.

Rogers confirmed that the UK creative sector is seeing signs of recovery: "Confidence has returned to the advertising sector, meaning many existing Mac users are beginning to upgrade. With the Power Mac G5, Panther and XPress for OS X, there's a compelling reason to upgrade now."

TV graphic designer Peter Smith said: "Advertising revenue has definitely gone up, so there's a more positive attitude in the industry, but budgets are still limited and management expects us to do twice as much work without the resources, because over the past few years we've proven that we can. There's still that pressure to do more with less ."

Rogers confirmed that Apple would continue working with MacExpo's organizers: "It's a good relationship, and we'll continue to work it out and see how we get on."

MacExpo is also expanding, with another show tabled for June 2004 in Germany. Denton confirmed that work on this is "going well", while Rogers revealed Apple was "in discussions" concerning that show.

The show's success means exhibitors have already rebooked 35 per cent of the exhibition space for 2004.

Mark Newcombe of AT Computers said: "We were really impressed. Thursday was excellent and Friday was even better. We've already booked for next year."

Rapid Group director Paul Hopkins revealed that the company took £25,000 on its software stand on Thursday, and that it "is seeing good long-term leads".

■ **Around 5 per cent of adults have received help using the Internet from children aged 5-8, British Telecom claims.**

'Constant traffic'

Adobe marketing director Mark Floisand said: "We have seen constant traffic for both our at-stand product demos and masterclasses. This show has been a great opportunity to meet our customers."

AM Micro's Steve Hawkins said: "There has been lots of interest in new products, and we've seen a lot of design professionals coming through the door."

Jonathan Cole of Computer Warehouse was another who agreed that MacExpo 2003 had resulted in healthy returns: "We've made thousands of sales, and there has been consistent interest in Apple."

Resellers were impressed by the quality of customers attending the show. Rapid Group sales director Garrett Doyle said: "People are at the show to buy things, not just to evaluate products with a view to buying later."

Dreamtek managing director Tristan Blackley said: "We've seen a lot of interest in audio – everything from low-end to high-end sales."

Event organizers and exhibitors also praised the Mac Support Company, which delivered technical support during MacExpo. "They have been invaluable," said Denton.

Islington's Business Design Centre is confirmed as the venue for next year's event, which will run from November 18-20.

Denton said: "The show is growing, and the other option is Olympia, but although it's bigger, in Islington you've got a lovely location and 80 places to eat and drink outside. I don't think we've outgrown this venue yet."

The exhibitors seemed to agree. AM Micro's Steve Hawkins said: "We'll continue to do the show, as long as it doesn't move to Olympia." **MW**

Jonny Evans, Karen Haslam

Arcade heaven

Expo 2004 was host to a huge games arcade comprising 18 1.8GHz Power Mac G5s loaded with the new titles.

Showgoers queued to play games that included: Disney/Pixar's Finding Nemo and Nemo's Underwater World of Fun, Engie Benjy, Time for Teamwork, Total Immersion Racing, Dungeon Siege and Rayman 3: Hoodlum Havok. There was also a networked version of Unreal Tournament 2003.

MacGames technical director Tony Pollard said: "We were unbelievably busy, and sold out of Finding Nemo on day one. The show gets better each year, and we'll be here in 2004."

MacExpo show stoppers

HP ScanJet 4600

Griffin RadioShark

Epson Stylus Pro 4000

The Macworld Best of Show Awards for MacExpo 2003 represent the most exciting new hardware and software products.

To be eligible for consideration products must either debuted at MacExpo 2003 or generate excitement on the show floor. All prices quoted are inclusive of VAT.

"Macworld Best of Show Awards represent a highly coveted honour within the Mac industry," said Macworld editor-in-chief Simon Jary.

The nine awards went to:

Apple 20-inch iMac Apple's new £1,749 iMac bridges the gap between Apple's consumer and professional offerings. Read our review on page 50, and also see page 19.

Adobe Creative Suite Adobe CS (£665) brings together new versions of Photoshop, Illustrator, InDesign, GoLive, Acrobat 6.0 Professional, and Version Cue file manager, in a comprehensive design environment. The cross-application integration and workgroup-friendly features promise new opportunities for both publishing pros and prosumers.

Epson Stylus Pro 4000 At just £1,757 Epson's A2-format printer offers swift photo-quality output at a price that delivers oversize printing to

Macworld BEST OF SHOW MACEXPO LONDON 2003

a wider market. The printer features Epson's eight-colour ink system for the widest possible colour gamut.

FileMaker Meetings and Tasks The company has taken a great step forward in catering for the common needs of business users with two new productivity applications. See Product News, page 37.

Griffin RadioShark Griffin's Technology's AM/FM radio is a shark-fin-like radio than can time-shift record, pause, play and record local airwaves, and offers Internet audio broadcasts. It costs £54 and integrates neatly with Apple's iPod.

HP ScanJet 4600 HP's ultra-thin, high-resolution scanner adds a touch of class to desktop scanning with its tough polycarbonate viewing-window and chemically treated tempered glass. The £149 scanner offers photo-quality results at 2400-dots-per-inch optical resolution and 48-bit colour, and because images are scanned face up users can see what is being scanned.

Creo Tokens A Creo Token is an impressively simple solution to make file sharing convenient, fast and effective. With one click users can create tokens that represents files they wish to send via email or instant message, the token representing the files will be very small.

Microsoft Wireless Optical Desktop 2.0 Elite Keyboard and mouse Both keyboard and mouse have a scroll wheel that moves across screen pages sideways as well as up and down, making it easier to view wide documents and Web pages. These deceptively simple, innovative products make for a better user experience. See Reviews, page 52.

Disney Interactive's Finding Nemo A visual treat for gamers is contained within this adaptation of the hugely successful Pixar's movie, Finding Nemo. The £19.99 game, in which users get to guide Nemo and Marlin through the ultimate underwater adventure, sold out at London's MacExpo on the first day. **MW**

Karen Haslam

Powerful Panther purrs along

Panther's 150 new features and enhancements have overshadowed talk of any performance boost from the OS X update. But make no mistake – Mac users with a need for speed will find plenty to love about OS X 10.3. Macworld Labs compared the performance of Panther to that of Jaguar on two systems – a dual-2GHz Power Mac G5 and a 1GHz Power Mac G4 – in six task-based tests. The G5 system using Panther finished on top of its Jaguar-running counterpart in four of our six tests; the two G5 systems finished in a dead heat in our Photoshop test. A single-processor G4 with Panther outperformed the OS X 10.2.6 system in five of the six tests. A find-&-replace command in Word X took a little longer to complete using the updated OS. Still, Panther's overall performance makes it Apple's fastest cat yet.

Macworld LAB TEST

SYSTEM	ENTOURAGE X	iMOVIE 3.0.3	PHOTOSHOP 7.0.1	QUAKE III V1.32	WORD X
Startup	Download Email	Render	Suite	Frame rate	Find and Replace
G5/dual-2GHz, Panther (10.3)	**0:41**	**0:09**	**0:25**	**0:18**	**297.8**	0:19
G5/dual-2GHz, Jaguar (10.2.7)	0:47	0:13	0:27	**0:18**	292.6	**0:16**
G4/1GHz, Panther (10.3)	0:51	0:11	0:42	0:50	79.9	0:31
G4/1GHz, Jaguar (10.2.6)	1:00	0:17	0:50	0:52	75.9	0:25
<Better	**<Better**	**<Better**	**<Better**	**>Better**	**<Better**

(Best results in **bold**)

Quake scores are in frames per second; all other scores are in minutes:seconds. All systems were configured with 512MB of RAM. We tested the G5 systems with Energy Saver's Processor Performance set to Highest. We set displays to 1,024-x-768-pixel resolution and 24-bit colour. For the Startup test, we started timing when we hit the power button and stopped when the desktop icons appeared on screen. We recorded the amount of time Entourage took to download 20 email messages with a mix of attachment sizes and types. We timed the export of a 51.2-second iMovie to QuickTime:Email. The Photoshop Suite test is a set of ten scripted tasks using a 50MB file. Photoshop's memory was set to 100 per cent, and History was set to Minimum. We tested Quake III at a resolution of 1,024-x-768 pixels, with Graphics set to High Quality. We recorded the time it took Microsoft Word X to find 17,448 instances of one world and replace it with another.

Macworld Lab testing by James Galbraith.

Quark customers 'now kings'

'With regards to InDesign, at the end of the day it's not about threat, it's about making sure we deliver the better product'
Quark director of product management, Jurgen Kurz

At MacExpo 2003 Macworld met with Quark's director of product management Jürgen Kurz and newly appointed vice president of corporate development Susan Friedman to discuss QuarkXPress, InDesign, and the company's communication skills.

Quark has been deeply involved in product development in recent months. "We've really made sure the quality is there", said Kurz. "The publishing industry is showing signs of recovery, at least in some countries. I think the budget for the large customers will be freed-up again, and I think we'll see significant sales next year. Customers are budgeting to buy new equipment, rather than just talking about it."

XPress Vs InDesign

Adobe InDesign was dubbed the 'Quark-killer' when it was introduced, and although Kurz does not dismiss the competition it offers, he says it's all about "what the customer wants and feels comfortable with".

He said: "When you look at moving to OS X we feel the product we are offering doesn't provide any additional headaches – you install it, and it works.

"With regards to InDesign, at the end of the day it's not about threat, it's about making sure we deliver the better product, by doing our best. That's all we can do, and we continue to deliver what we need to deliver. Some things we do well, and others we need to do better.

"We are investing in XPress to ensure customers will choose to stick with us. We are financially stable, and invest a lot in research and development.

"We definitely have more people working on XPress than Adobe has on InDesign. We have over 200 XPress developers. XPress is very important to us. It dear to our heart," he claimed.

Tomorrow's world

The arrival of electronic fonts, XPress, Macs and Photoshop revolutionized publishing in the 1980s, and Kurz says that instead of trying to create another revolution "what we need to do is distinguish between features that change the way people work, and those people think products like ours should already have".

Kurz cited multiple undo and tables-support in XPress as examples of "little improvements which are really big improvements when you work the application every day".

He added: "Then there's things that really change the way we do things, such as Xpress 6.0's Layout Spaces. These allow designers to build projects with multiple layouts – business cards, letterheads, stationery, for example – and ensure consistent design across all the elements through using Workspaces. It means, for example, that if a logo is updated, it's updated across the different layouts automatically.

"I think that's a fantastic feature. No desktop product has such a feature. People think in projects, but even if you think in chaos what we have here is a way people can separate content from design. They can play with ideas without worrying about the content. They don't have to use copy-&-paste."

Today's publishing increasingly embraces PDF across the workflow. Kurz said: "We need to invest more in PDF publishing, and we need to have a very rich toolset for Web content management. Fundamentally, we always want to do things that fulfil our customers' needs."

Publishing should be fun, says Kurz: "We want to provide tools that let people be productive, but at the same time – because people spend eight hours a day in front of our application – allow it to be fun."

iPod Advent-ure

Ronan Keating launched Apple's iPod Advent campaign at Virgin's Oxford Street superstore. Using an iPod, the store will play continuous, unrepeated tracks until Christmas Eve. The launch marks Virgin's deal with Apple to stock iPods (see page 34).

Keating said: "My iPod has become my travelling companion – it goes with me absolutely everywhere."

Ronan Keating with Apple UK general manager Mark Rogers.

Mac calendar, 2003/04

December 15
The Power of Panther
Hilton, Dublin. Free Apple seminar to showcase Mac OS X 10.3 Panther.
www.apple.com/uk/series/panther/

January 5 -9
Macworld Expo
Moscone Center, San Francisco.
The world's most comprehensive Mac event.
www.macworldexpo.com

January 7-10
BETT 2004
Olympia, London
ICT-in-education event (see preview pages 30-31).
www.bettshow.co.uk

January 15-18
NAMM 04
Aneheim, California, US
The world's largest trade-only music-products show.
www.thenammshow.com

February 2-5
Imagina 2004
Monaco, France
Leading European event for the worldwide digital-entertainment industry.

February 9-12
O'Reilly Emerging Technology, Westin Horzon Plaza, San Diego. A look at mobility and social software.
http://conferences.oreillynet.com/etcon

February 10-12
VIZFX, Wembley, London
2D, 3D & animation applications.
www.vizfx.co.uk

February 10-12
VideoForum 2004
Wembley, London
The UK's biggest technology showcase for production, new media, and streaming.
www.videoforum.co.uk

February 10-12
Sounds Expo
Wembley. Event aimed at musicians, producers and sound engineers.
www.sounds-expo.co.uk

February 22-25
Focus on Imaging 2004
Birmingham NEC. Europe's biggest imaging show
www.focus-on-imaging.co.uk

February 24-26
Screen-Digital 2004
NEC Birmingham
Screen and digital printing.
www.screen-digital.co.uk

March 18-24
CeBit, Hanover, Germany
The world's top IT event.
www.cebit.de

March 30-April 1
Digital Expo, NEC.
Digital print and services.
www.digitalexpo.co.uk

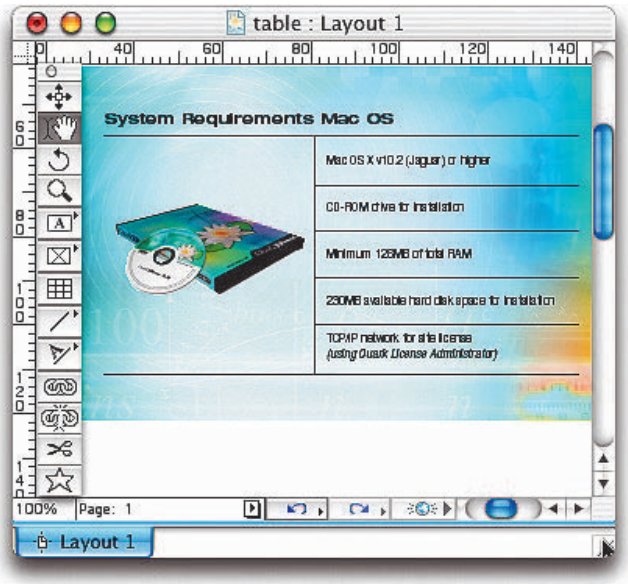
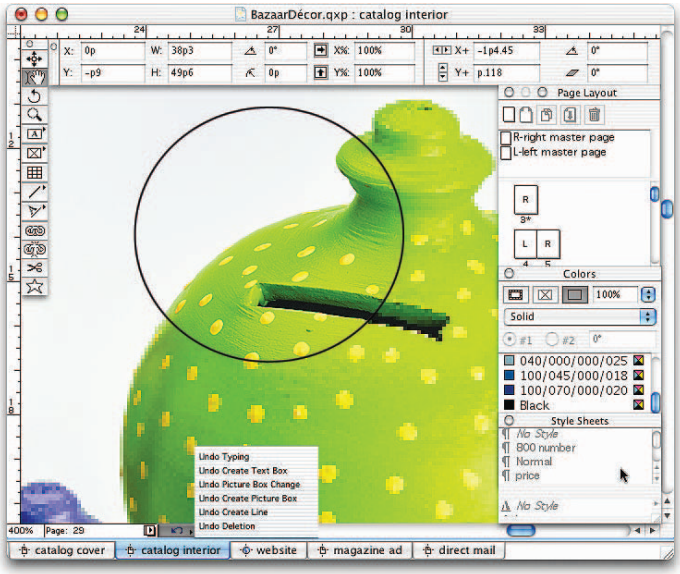


table : Layout 1
System Requirements Mac OS
Mac OS X v10.2 (Jaguar) or higher
CD-ROM drive for installation
Minimum 128MB of total RAM
230MB available hard disk space for installation
TCP/IP network for site license
(using Quark License Administrator)
100%
Page: 1
Layout 1



Feature presentations

Quark's aim, says Jurgen Kurz, is always to provide users with the features they want and need – such as Table tools (left) and Layout Spaces.

Upgrades

Quark gained notoriety among Mac users for its tardy delivery of XPress for OS X, but QuarkXPress 6.0 has been very well received, said Kurz: " Xpress 6.0 has been the most successful, fastest-selling upgrade in terms of unit sales ever. Although larger clients tend to upgrade more slowly there are so many smaller customers who have already upgraded it's fantastic. OS X is definitely happening."

Quark's critics have complained of the infrequency of its product updates – something Kurz said will change: "We are aiming to update every 14-18 months. Moving to more-frequent product revisions offers Quark an advantage, as it makes us more competitive. We can introduce new features that our users need, things like support for new PDF specs."

Kurz added: "For the last year it's all been about where XPress for X is. But now it's here, and I think its time we invested not just in engineering but also in communication.

User relations

With regards to communication, Quark wants to get closer to its users. Kurz said: "We take that criticism and we agree with it. We need to improve. We recognize a distance has been there, and we have begun investing to bridge that gap."

Friedman said: "We tend to put all our force and passion into making the products the best they can be. We have not been the best at communication, and we need to do better."

UK XPress users can expect the company to put people in place here "to speak directly to the customers", Kurz and Friedman promised. The company is preparing plans for roadshows next year, in order to meet customers. To this end, Kurz travelled from the US to be at MacExpo. "We never want to leave the UK market," Kurz said. "When we reduced our presence in the UK last year it was not an abandonment of the UK but was in response to the economic reality then. Now we are building for another age."

This new age involves a more customer-focused Quark, says Friedman – a 13-year Quark veteran: "Our customers can do a lot better if we help them work more efficiently."

Friedman's new role is to fill the gaps that have evolved between Quark and its customers over the years. She said: "We have to communicate with our customers and partners better, and the service bureaus and printers. We have to deliver better training, too. It's a big job, but we did it well when I first came to Quark, and will do it well again."

Quark competitors Macromedia and Adobe have successfully developed well-used customer forums where users swap hints, shortcuts and solve problems. Quark doesn't yet offer that depth of community.

Friedman said: "We must do better there. We must improve across the board. We must improve our communications, offer better hints, tips and training and get user-communities back."

Jobs and Ebrahimi

In November 2002 Quark CEO Fred Ebrahimi declared Apple would "become a consumer electronics company", and Quark's lack of an OS X version of XPress at the time led many industry watchers to predict that the company was planning to end its DTP relationship with the Mac community.

Kurz said Ebrahimi "was expressing his concerns that Apple's move to OS X was forcing pro-publishers to upgrade in a tough economy". He added: "We are completely committed to Apple, as 50 per cent of the company's sales are Mac, We even launched XPress 6.0 in Cupertino together. We have people sitting in Cupertino working with Apple on fixing bugs in XPress 6.1 for Panther. We work together closely, not just in marketing or in business terms, but also from a development perspective."

Apple's move to a rock-solid implementation of Unix may ultimately widen Quark's presence on Macs, Kurz suggested: "OS X's Unix core is most interesting, as we also have server-led products that allow users to run XPress in a multi-threaded environment on a server. That's when it becomes very powerful." **MW**

Jonny Evans

Quark planning UK user-events

Quark has a few more surprises in store, said Friedman: "We are doing a lot with Apple. Both companies are part of the Driven by Design show in the US. These seminars offer design professionals in the US a hands-on chance to use tomorrow's publishing solutions, and we are going to do this in the UK in the first quarter, she said.

"We are also going to bring back XPress user-conferences, which were always useful."

Quark is applying the final touches to XPress 6.1, a free update for registered users, and that is due for release in mid-December.

Kurz said: "It's optimized for Panther. In some instances XPress will run 30-50 per cent faster on a G5 and Panther. That's the way Apple and Quark are working."

■ There are four million registered QuarkXPress users worldwide

New G5 dual in crown

Apple has introduced a second dual-processor 1.8GHz Power Mac G5, and cut the price of its entry-level 1.6GHz model by £150. The move reflects better-than-expected sales of the dual-processor 2GHz G5.

Apple vice president of hardware product marketing Greg Joswiak said: "Our customers told us loud and clear that they love dual-processors, and so now two of the three Power Mac G5 models feature them."

The new model offers dual-1.8GHz PowerPC processors, each with an independent 900MHz frontside bus that Apple claims "provides for more than 14GBps of bandwidth for fast throughput to main memory". The previously available single-processor 1.8GHz model has been withdrawn.

The Power Mac G5 range now includes three models: dual-processor 2GHz (£2,299) and 1.8 GHz machines (£1,899), and a single-processor 1.6GHz model for just £1,399. Prices for Apple's 64-bit personal computer include VAT.

Joswiak said: "The Power Mac G5 line-up is more affordable than ever."

The Power Mac G5 1.8GHz dual-processor machine ships with 512MB of 400MHz 128-bit DDR SDRAM. Users can install up to a massive 8GB of memory on this machine. It also features a 160GB Serial ATA 7,200RPM hard-disk drive and an AGP 8x Pro graphics slot with an NVidia GeForce FX 5200 Ultra video card with 64MB DDR SDRAM. The internal expansion capability is rounded off by three 64-bit PCI-X slots – one of which operates at 133MHz, while the other two are clocked at 100MHz. The system features a 4x SuperDrive that can burn both DVD-R and CD-RW media.

Connectivity options include one FireWire 800 and two FireWire 400 ports, along with three USB 2.0 ports. Gigabit Ethernet, optical digital audio and analogue audio I/O are also built-in. Apple has focused on performance here, too, offering I/O throughput of 3.2GB per second.

The software bundle includes: Mac OS X 10.3 (Panther), iLife (including iTunes, iPhoto, iMovie and iDVD), FAXstf, Art Directors Toolkit, FileMaker Pro Trial, OmniGraffle, OmniOutliner, GraphicConverter and Apple Developer Tools.

"With its focus on speed, performance and affordable 64-bit desktop power, Apple's new professional Macs are attracting attention from Unix and Linux users, as well as educational, scientific and research institutions," said Joswiak speaking at MacExpo.

He added: "We are seeing signs that confidence is returning to the advertising markets, meaning publishing professionals seem more willing to upgrade.

"The debut of QuarkXPress for OS X, Mac OS X 10.3 and the Power Mac G5 means Apple now offers a compelling reason for users to upgrade." MW

Mac discounts

Apple is offering customers a £200 discount when they buy a new Mac with Final Cut Pro 4 and DVD Studio Pro 2. Also, those who already own a new Mac can save £100 when they buy the two applications together. The deals are available worldwide until February 28, 2004. For more information got to www.apple.com/uk/promo/prosavings.

Pro video-apps updated for G5

Apple has optimized its suite of professional video applications for Power Mac G5s. Final Cut Pro 4.1, Shake 3.0.1 and DVD Studio Pro 2.0.2 – along with Compressor 1.1 – are available both from the Apple Web site, and via Mac OS X's Software Update.

FCP 4.1 offers support for the simultaneous playback of seven fully uncompressed standard definition (SD) video streams with real-time effects using a dual-2GHz processor Power Mac G5 and Xserve RAID. Achieving this kind of power once required external equipment. The G5 allows FCP to deliver five digital-video streams in safe mode, again with no extra software. A leading benefit for editors is that video rendering is now twice as fast on a G5 than the 32-bit processors of G4 Power Macs.

Apple's vice president of applications marketing Rob Schoeben said of the updates: "The results are unprecedented for both real-time and rendering performance, and all this is available at a fraction of the cost of systems requiring dedicated hardware."

Sven Krong, co-founder and president of video company Click Media, agrees: "We now have the horsepower to deliver stunning results to clients in a fraction of the time it used to take and all at a cost we can afford."

A cut above *Final Cut Pro 4.1 utilizes the G5's processing power.*

DVD Studio Pro 2.0.2 and Compressor 1.1 speed-up the job of encoding projects from Final Cut Pro 4.1 to broadcast-quality MPEG-2. High-volume, repetitive encoding tasks are "up to 55 per cent faster" on a G5 in contrast to G4s, Apple said.

The Shake 3.0.1 update offers rendering-speed increases of up to 45 per cent on a Power Mac G5. MW

Apple Store comes clean

■ A Macworld Online poll showed that 29 per cent of readers have had problems using the UK Apple Store. A total of 9 per cent who responded said they won't use the service again.

Apple has rolled out a new logistics system across its European online Apple Store, and has exclusively told Macworld that its roll-out has caused serious problems for customers, with 39 per cent of them facing delays when problems were at their worst.

Apple Store Europe director Francois Duquesne said: "The crisis is now under control. We have fixed the broken parts, and we have the capacity to respond".

The problems were first unearthed by a Macworld Online reader poll, in which 27 per cent of readers said they had experienced problems with the Store, with many complaining of delays and shipping problems.

Duquesne said: "It certainly has been painful. Customers have not been receiving products in the timeframe we said they should. We've seen the issue gradually escalate, and become a flood in the past six to eight weeks."

Apple Europe PR manager Alan Hely said the company values such input: "Apple welcomes feedback from customers. We take customer feedback very seriously, and receiving it directly allows us to address it."

He pointed to the built-in bug-reporting features of Safari and Mac OS X 10.3 as evidence of the company's desire to attract customer feedback.

Following the poll, Apple sent an email to Apple Store customers admitting the company was facing "several implementation issues" with the store. It promised that it "is taking all the necessary steps to restore service levels as quickly as possible".

Duquesne added: "The problems were a result of a logistics upgrade to our ordering system introduced in July. It was implemented at the same time as Apple Store business exploded. In the past year the Store has seen very strong growth. We have introduced products like iPods and Panther, that have been huge successes. These low-cost items are being ordered in large quantities.

"In the past six weeks we have been working with Apple Europe's senior director of logistics Joe Gantley to address the problems. He has been working with our partners to increase warehouse capacity."

Other measures include hiring new planning and logistical staff and bolstering the call-centre team.

Duquesne said: "We have been deluged with so many calls and emails that we hadn't been able to answer them in a timely manner, meaning customers faced long waits when they called to report problems.

"We have put more people on the phones – some permanent; some temporary – to deal with the crisis. We expect that as logistical problems are solved service levels on the phone and on email will return to normal. We also have a dedicated urgent-response team."

Many readers complained the Store was not meeting promised delivery times. One UK-based reader revealed that the iPod he ordered through the Apple Store was still in the wrong country: "My wife ordered an iPod – it arrived at Apple's warehouse in Holland on November 7, and is still there. They do not know when it will be shipped. I have been given three different delivery dates, all of which have passed."

As Macworld went to press Apple was preparing to announce the last possible date that customers can place orders for Christmas. "We will be conservative with this date," Duquesne said. **MW**

■ Aggrieved customers should contact Apple on 0800 039 1010.

Karen Haslam

Pub tunes go digital

The sight of the traditional juke box (left) could soon be a thing of the past, as thousands of UK pubs will soon be introducing broadband-enabled jukeboxes with access to millions of tracks.

Inspired Broadcast Networks' player offers paying punters access to an online database of two million songs through a system of 6,000 broadband-connected jukeboxes.

The company claims the service will also offer pre-released tracks, predicting that 300 new tracks will be added each day.

"For a modern consumer accustomed to instant access to millions of the latest tracks from MTV, Napster and the iPod, the traditional juke's combination of terrible compilations and lack of new music does not compare. This has resulted in declining juke incomes, and pub retailers scrapping in excess of 1,000 jukeboxes a year across the UK," the company said.

It intends rolling-out the system across the UK in 2004, with some test jukeboxes deployed at undisclosed locations in the run-up to Christmas, "and not necessarily in London".

Tracks will cost 50p, though drinkers in a hurry can pay £1 to ensure their music choice plays first.

The system is being introduced in partnership with Entertainment UK, itself part of high-street giant Woolworths. As they listen to music, drinkers will be able to order a physical CD of the album be sent to their home. The companies hope to offer the option of MP3 emailing, starting next year. **MW**

1984: 20 years on

Twenty years ago Apple stunned the US Super Bowl TV audience with its now world-famous "1984" ad, featuring an athletic heroine (British discus thrower Anya Major) who broke the new world order with a hammer as a fitting visual message to support the introduction of Apple's brand-new Macintosh computer.

The award-winning advert was a huge success for the company, and for many still sums up what Apple is about. But when first screened before the Apple board of directors, the movie met a stunned silence, according to then-CEO John Sculley. "Two board members put their heads in their hands and said, 'You're not really going to run that, are you?'".

The board complained that the $700,000 ad – which cost a further $1.5 million to screen during the Super Bowl – never once showed the product. "They said it would be irresponsible to spend all that money on an ad that didn't show the Mac," said Lee Clow, TBWA/Chiat/ Day's creative director.

Directed by then up-and-coming British director Ridley Scott, "1984" offered high-quality cinematics. Filmed at Shepperton Studios, Scott recruited hundreds of extras willing to shave their hair for $125 per day. James Biddlecombe, who starred as one of the Big Brother-watching audience, told Macworld that the casting agency actually hired a bunch of skinheads as extras.

"We wanted to get people's attention", said Steve Hayden, a copywriter for the ad.

"I was fascinated to see the reaction of other people", said ad analyst Bob Garfield, who instantly liked the commercial. "It was clear that the literal message was not apparent to them, but they certainly felt the emotional impact."

However, the board asked Sculley to sell-back the Super Bowl advertising time – one 60- and one 30-second pitch. Defiant, Chiat/Day only sold the shorter slot, so the 60-second ad screened after all. It worked. Within hours, Apple's switchboard was jammed by curious callers, newspapers, magazines and all

three US TV networks and 50 local stations carried news items about the ad – it was a PR coup.

Clow described negative reactions from competing advertising firms to the ad as "horseshit from people who didn't have the balls to produce something like 1984".

It was the beginning of a brand philosophy that Apple still retains, Garfield said. "It broke all the rules; and the reaction has been unprecedented," said Hayden.

So Big Brother, the villain from Apple's "1984" Mac ad, represented IBM, right? According to the ad's creators, that's not exactly the case. The original concept was to show the fight for the control of computer technology as a struggle of the few against the many, says Clow. Apple wanted the Mac to symbolize empowerment, with the ad showcasing the Mac as a tool for combating conformity and asserting originality.

And don't let Big Brother's glasses fool you into thinking he represents Bill Gates, because back in 1984, Gates was just a humble software tycoon tinkering with MS-DOS (and two years away from making his first billion).

Adelia Cellini, with thanks to Owen Linzmayer's forthcoming Apple Confidential 2.0 for additional research. **MW**

WHERE ARE THEY NOW?

APPLE

Steve Jobs
THEN: Co-founder and chairman, Apple.
NOW: CEO, Apple and Pixar.

John Sculley
THEN: President and CEO, Apple.
NOW: Partner, Sculley Brothers LLC (an investment firm).

CHIAT/DAY

Lee clow
THEN: Creative Director, Chiat/Day.
NOW: Creative Director, TBWA/Chiat/Day; followed-up "1984" with memorable ad campaigns such as the Energizer Bunny and Taco Bell's talking Chihuahua.

Steve Hayden
THEN: Copywriter, Chiat/Day.
NOW: Vice-Chairman, Ogilvy & Mather.

THE COMMERCIAL

Ridley Scott
THEN: Director of Alien, Blade Runner, Gladiator, and Apple's "1984" commercial.
NOW: Three-time Academy Award nominee for Best Director.

Anya Major
THEN: A model whose experience as a discus thrower won her the part.
NOW: Like the image she smashed, Ms Major has faded from view; our efforts to track her down were unsuccessful.

Ever noticed this?

Starting up in Classic is always a drag – it takes forever on anything but a G5, and it means staring at the Platinum UI, on top of jerky QuarkXPress redraws and horrible crashes. So thanks Apple for making the whole process that little bit more enjoyable in OS X Panther. As Classic starts up, the Dock's 9 icon slowly fills with orange.

Five-floor Tokyo store first non-US Apple outlet

Apple's Tokyo storey

Apple's first retail store outside of the US – in Tokyo's Ginza shopping district – is open for business. The company will open a second store in Japan, in the country's second-largest city, Osaka, in the second half of next year.

The five-floor Tokyo store includes dedicated Solution Centers for music, movies and photography; a Genius Bar, an 84-seat theatre for workshops, demonstrations and other events, an Internet café, and a Kids section with educational software and games.

Apple CEO Steve Jobs told a press conference in Japan: "Apple's market-share in Japan used to be higher than it is today, and we want people to know Apple is back in a serious way and investing in Japan."

The company's senior vice president of retail Ron Johnson said: "Over the past two years, Apple has redefined computer retailing for Mac and PC users in the US, and now it's bringing the best personal-computer buying experience to one of the greatest shopping destinations in the world – the Ginza in Tokyo."

Johnson added: "New York's Fifth Avenue, the Champs Elysées in Paris, and Regent Street in London are all great, but there is nothing like Ginza."

Apple's new outlet rubs shoulders with world-famous retailers, including Louis Vuitton, Hermès and Gucci.

Apple is employing 140 people at its Tokyo store, and says that between them ten languages will be spoken: Japanese, English, Mandarin, Cantonese, Korean, Thai, Italian, Spanish, French and Portuguese.

Apple's 70 retail stores in the US have hosted more than 24 million visitors since the first Apple retail store opened in May 2001.

In a recent analyst meeting Ron Johnson said: "In our stores last year we had 14 million visitors, equivalent to 175 Macworld Expos."

Johnson refused to comment on plans for other retail outlets in Asia and beyond. **MW**

Words and pictures: Martyn Williams

Plug is pulled on LiveMotion

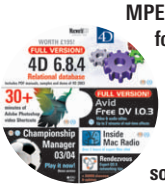
Adobe has ended development and distribution of LiveMotion, its tool for building dynamic interactive Web content in Flash and QuickTime.

A note on the company's Web site confirms the decision, which was announced to existing registered customers on November 15.

It reads: "Adobe will no longer distribute LiveMotion 2.0. Adobe has decided to concentrate its efforts in other areas, but we want to thank our loyal LiveMotion customers for their support."

The company intends to maintain direct technical support for the product until March 31, 2004. LiveMotion support within the Adobe Support Knowledgebase and User-to-User Forums on the Adobe Web site will be available "until further notice".

Raw deal



Raw 1.0 lets Mac users record Internet audio to MPEG-4's AAC format. It will record simultaneous multiple audio streams, soundtracks and webcasts, and the files are iPod-compatible. The product offers AppleScript support, and supports RealAudio, Flash and QuickTime. The full version costs $20.

www.bitcartel.com

■ UK small firms can claim total tax relief on IT equipment from January 2004.

Blackberry picking

Research In Motion (RIM) has released the BlackBerry wireless email device. RIM will offer the triband BlackBerry 7730 Wireless Handheld in the UK before deciding if it will make it available elsewhere in Europe.

The 7730 offers phone, email, SMS (Short Message Service), browser and organizer features, and has a 2.9-inch colour screen.

Pricing for the 7730 is subject to negotiation between O2 and its customers, but the company is offering the device for £289 for orders of over 500 devices.

For orders between one and 19 units, the price is £329. Monthly subscription rates will cost £56 at most, the company revealed.

RIM is currently negotiating with other carriers to provide services for the BlackBerry 7730.

Digital video a sure BETT in 04

Apple gong-ho

Apple's iPod and 17-inch PowerBook G4 have been nominated for BETT awards. Results will be announced on January 7. Apple has won BETT awards for the past three years – for iMac, iDVD, iBook and AirPort.

Tech for poor

The e-Learning Foundation is using BETT 2004 to help it raise £1 million to give disadvantaged UK areas access to technology. "Without computer access at home many children from deprived areas are being denied the chance to develop the knowledge they need to progress in an increasingly digital world," the charity said.

Find out more from www.e-learningfoundation.com

Learning Curve

The UK's National Archive is exhibiting for the first time at BETT this year, to promote its Learning Curve Web site.

This site is a teaching resource that supports the UK's National Curriculum, and offers plenty of information teachers can use in class. It offers online exhibitions and interactive investigations, based on information held in the Archive's 1,000-year-old collection. A new Empire exhibition will launch at the show.

http://learningcurve.pro.gov.uk

The growing importance of digital technologies as learning tools in UK schools is confirmed by the line-up and programme of BETT 2004 – the UK's biggest annual ICT-in-education show.

The event takes place at London's Olympia from January 7-10. Now in its 21st year, BETT is expected to attract 500 exhibitors, including Apple, which traditionally uses the event to offer an early taste of what it was announced at Macworld Expo San Francisco, which this year opens on January 6.

BETT 2004 will reflect the expanding role of digital technologies in the curriculum. Typical of the mass of research proving technology's worth to pupils was a recent report from Knowsley Council, which showed that students with access to an online exams-practice Web site achieved five points better in their GCSE grades.

Apple is looking to build on its estimated 3-5 per cent share of the UK education market. At the show this year, the company has joined forces with Canon, Film Education and Ultralab to invite invite groups of students to record live video footage at the show, edit it using Macs and iMovie, and broadcast the results on monitors set-up around the show.

The experiment is designed to turn schoolchildren into TV presenters, interviewers, video editors – and all to tight deadlines. Teachers will also be able to sign-up for free half-hour video-production training sessions at the 'BETT Goes to the Movies' stand.

Reeza Awoodun, marketing manager of UK education ICT supplier Tag Learning, said: "Video is emerging as this year's hot potato. All the advisors are evangelizing its use, and there's a lot of encouragement being aimed at schools to help them adopt it in the classroom."

Kudlian Software director Roger Young told Macworld: "Apple has done a good job convincing people that Macs are the best platform for digital video but in terms of being a platform for digital video, but Windows PCs are catching up. Industry observers say education advisors can be blinkered, and will go with what they know – to the detriment of the learning environment in some cases.

"Because of its complexity video is more attractive to secondary rather than primary education. Primary schools will look to what they already have.

"Schools find it difficult to accommodate desktop computers in already overcrowded classrooms, so are buying more laptops and consider wireless connectivity as a viable option."

One industry insiders said: "School ICT co-ordinators are ICT curriculum specialists, not necessarily technical specialists. BETT should be seen as an opportunity for those people to look at what is innovative, what is available and how it may be integrated into the curriculum.

ConceptDraw shapes up

CS Odessa presented ConceptDraw 5 at MacExpo – "a comprehensive redevelopment of our existing product", said marketing director Vera Zvereva. The award-winning technical diagramming and flowcharting application is used by NASA scientists.

New in this release is ConceptDraw Basic, a built-in scripting language that developers can use to create customized visualizations based on the application's drawing engine.

The product ships with hundreds of libraries containing ready-to-use shapes for engineering, science, education and business-related tasks. These can be scripted to intelligently reflect parameter changes.

ConceptDraw 5 has customizable toolbars, floating dialog boxes, and anti-aliasing. The new version has been rebuilt to make it is less processor- and memory-hungry, CS Odessa says. It also adds support for XML, meaning users can import drawings from other applications, can access ODBC-compliant databases and visualize their data graphically. Password protection and auto-save are other new features.

Zvereva told Macworld: "I've never worked with a development company like this one. It took a lot of work to convince them to meet scheduled release times for the product, as they are always identifying and then implementing new features for ConceptDraw."

ConceptDraw 5 is available in Standard and Professional versions. Standard costs £99, and Professional version is £249.99. Prices exclude VAT. Educational discounts are available.

The company also showed ConceptDraw MindMap ($179; UK price unavailable), a tool aimed at project managers, business specialists and educators who need to outline projects, and plan activities. **MW**

at annual schools ICT show

Good show
BETT 2003 attracted over 24,000 visitors

Third party Mac-friendly education-focused suppliers will also be at the show.

TAG Learning will exhibit products including MediaBlender, its virtual-reality creation tool SimplyVR, and Visual Thesaurus – a new product that makes finding words fun. The company is also showing its Mac-friendly education admin tool, MAPS.

Dig it
Sherston's archaeological title for OS X is Arcventure: The Romans

Education supplier **Softease** will launch new foreign-language packs, and will introduce Tizzy's First Tools, which offers seven ICT tools from Sherston and Softease for pupils aged between 4-7.

Sherston will also present Arcventure: The Romans, for OS X – a simulation that puts pupils through an archeological dig, and offers a virtual tour around a Roman villa.

Kudlian will appear at BETT to present new versions of Kudlian Suite 1 and 2, Terry the Turtle 2 and a Mac OS X version of Ask Oscar. Terry the Turtle 2 will be available in both English and Welsh, reflecting Welsh curriculum needs.

Digital Worlds will demonstrate a Mac version of its Digital Worlds geographical information system (GIS). The product focuses on the geography and history of a student's local area. Each school or college is provided with census data, historical and current maps and aerial photographs in the package.

A new online resource for teachers will also appear at BETT, in the shape of **Oxford University Press's** Oxford Scholarship Online. This paid-for site is comprised of 700 humanities and social sciences texts, with 200 titles being added each month. Visit www.oxfordscholarship.com for more details.

Lego is launching an Internet-based teaching and programming tool called Lego Mindstorms for Schools, a powerful robotics-teaching tool. It allows teachers to plan lessons, and teaches pupils how to program virtual Lego Mindstorm models online. Lego research shows that its software encourages more students to take the Systems and Control option at GCSE level, while making the ICT curriculum easier for teachers to tackle.

To pre-register for a free ticket to the show, and to receive the latest show information and news, visit www.bettshow.co.uk, or call the visitor hotline on 0870 429 4574. **MW**

Jonny Evans

Index linked
'The power of learning at your fingertips' – BETT's marketing image and logo.

Board roam

Smart technology is introducing its Mac-compatible digital whiteboard at BETT 2004.

The SmartBoard 2000i offers a 68-inch, shadow-free, touch-sensitive display. The board integrates a video projector, and has been developed so teachers can access a variety of digital content – including information held online or on CD – using the whiteboard's special pen and interactive display. The SmartBoard 2000i costs educators £5,995.

Just 14 per cent of youngsters from low-income homes go to university, against 75 per cent from more-advantaged homes, government figures show.

Mac-chester media frenzy

Arts collective Spearfish is staging a mixed-media event in Manchester using Macs in the run-up to Christmas.

The event, called Digital Space will see artists Sumit Sarkar and Simon Panltin creating a series of digital artworks using Wacom tablets and Adobe Creative Suite products. these will be projected onto huge screens that will fill the building's windows.

Sponsors Glenfiddich and Wacom are inviting 800 guests over four nights to sample their wares, and Adobe and Epson are also helping stage the event.

An art auction will be held on the last day, with unique artwork for sale. Manchester's Woodstreet Mission Charity will receive 30 per cent of all money raised. For more details go to www.spearfishltd.co.uk **MW**

Sims to wave magic wand?

Aspyr appear to be working on yet another expansion set for The Sims – called The Sims: Makin Magic. This expansion pack shipped for US Windows users on October 28, and has now appeared on Aspyr's press information Web site. While the company has offered no details regarding the Mac port, original author Maxis has described Makin Magic as "the last Sims expansions set".

The pack requires a registered version of The Sims be installed and allows Sims characters to use supernatural powers to cast both playful and mischievous spells. Sims fans who have spent time building up vast collections of garden gnomes can make them water the garden, for example.

Makin Magic offers 175 new items, and a host of new characters. The PC version the largest Sims expansion pack to ship so far.

To use magic, Sims gather ingredients and concoct potions to make spells. They can create minions – such as a Skeleton Maid who cleans house – and turn neighbours into toads, or can add a dose of Love Potion to make an unapproachable character fall in love with them. But like everything in the Sims universe, spells can backfire; a clumsily cast spell can result in bolts of lightning hailing down upon the hapless Sim, for example.

The game also offers a new carnival-like location, where players can take their charges through side shows, magic duelling, a variety of carnival rides, and even build a magical dream house to make their home in Magic Town.

New items include a baker's oven, spinning wheel and butter churn – and cryptozoologist Sims can even hatch and nurture a Pet Dragon who will eat everything from garbage to small creatures.

Aspyr has not yet announced price or shipment dates for the new product.

■ Simodifier 2.1 from Lake Group Software (www.lakegroupsoftware.com) is the newest version of the character-editing utility for The Sims.

The software (pictured right) can change aspects of Sim behaviours, including personality traits, family money, skills, interests, career paths and career levels. This tool also allows alteration of adult, child and pet Sim relationship values. Registered users can use the product's Behavior Lab feature, which lets them alter Sims behaviours for comic effects. This means adult Sims can be hacked so they begin drinking from the toilet cistern – or Sim pets characters. Sims Pets, meanwhile,

The $10 software runs on both OS 9 and OS X, and supports Mac Sims expansion packs up to and including Superstars. There's a demo on this month's cover CD. **MW**

On the CD

Fresh from Sloppydisk Software comes Tetris-style arcade game, Descender. Features include single-player puzzle-solving alongside a two-player battle mode. It runs in both OS X and OS 9, and costs $12 online.

www.sloppydisk.com

Top ten Mac games

1. Age of Mythology
2. Sims Superstar
3. GhostMaster
4. Finding Nemo
5. Star Trek Elite Force 2
6. Wolverine's Revenge
7. No One Lives Forever 2
8. Kelly Slater Pro Surfer
9. Family 4 Fun Pack
10. Big Metal Box

Source: Softline

Feral's game of one half

There is a half-season demo-version of Feral Interactive's forthcoming Championship Manager 2003/2004 game on this month's CD. Feral has also announced a pair of games compendiums that ship in the UK soon.

Championship Manager 2003/2004 offers four new leagues, a pre-game database editor, the ability to view previously saved matches and updated player, team and competition data. It offers 43 country leagues that are playable across 100 divisions.

It also offers a database of 200,000 footballers from around the world, and extensive statistical information, including training, weather simulations, live cup draws, player relationships and improved scouting reports. The full version of the game will be available this month, and will cost £30.

Feral also announced two games compendiums at MacExpo 2003 – Family Fun Pack and Big Metal Box collections.

The Family Fun Pack consists of Sim Theme Park, Worms Blast, and Zoombini's Island Odyssey. Feral's Big Metal Box offers Max Payne, Black and White, F1 Championship Season, and Oni. Pricing is not yet announced.

The Family Fun Pack runs on all 266MHz iMacs, while Big Metal Box will run on any Mac with a 400MHz processor and a 16MB graphics card.

■ UK developer Virtual Programming is offering three new games-bundles at discount prices until Christmas. On offer is Europa Universalis II and Hearts of Iron for

£39.95, KickOff 2002, and Player Manager 2003 bundle for £24.95, and WipeOut 2097 and Payback for £24.95. **MW**

Business briefs

- The trademark dispute trial between Lindows and Microsoft has been delayed until March 1 2004.
- Systems Support has launched a new specialist company – Velocity DV – in reaction to the expanding digital-video and -audio market.
- Compu b has unveiled MacEstimator – an online quotation tool that provides a trade-in price for old Macs.
- The US Senate has approved landmark anti-spam legislation that could mean $6 million fines or five-year jail terms for junk-email offenders.
- Corel has named current CEO Derek Burney as chairman of the company.
- Adobe has acquired Extensible Markup Language developer Yellow Dragon Software in a move to strengthen its XML architecture.
- Toshiba is doubling production of its 1.8-inch hard drives – used in the iPod – to 600,000 units a month by March 2004.
- The worldwide IT economy will rebound strongly by 2006 as businesses focus on driving growth, according to Gartner CEO Michael Fleischer
- Sharman Networks, distributor of the Kazaa Media Desktop peer-to-peer, software has launched $1 million advertising campaign to mobilize its 60 million users to pressurize the entertainment industry to agree to licensing deals with Sharman.
- BT has promised that, if the demand is there, then every UK home will have access to high-speed Internet services by 2005.
- Demand for Bluetooth chips has been exceeding supply by 30 per cent since the end of the third quarter, and demand will not abate before the end of the year, DigiTimes says.

Apple 'scoring on music'

Apple UK general manager Mark Rogers is bullish about the long-term outlook for Apple in the digital-music market.

"Many interesting things are going to happen in the whole digital-media area," Rogers told Macworld. "Microsoft is trying to get Windows Media established as the format for digital media, but no-one in Hollywood is interested in that becoming any kind of standard."

He added: "At the end of the day it's the content creators who will drive the digital distribution format."

Microsoft's Windows Media 9 multimedia format – that features digital-rights management – is widely used by European digital-music distribution services, particularly those driven by OD2 distribution. The company released Windows Media 9 for OS X this month.

However, Microsoft's attempt to establish market dominance in the digital-distribution industry has earned it yet more antitrust suits (see "EC slams Windows Media," below).

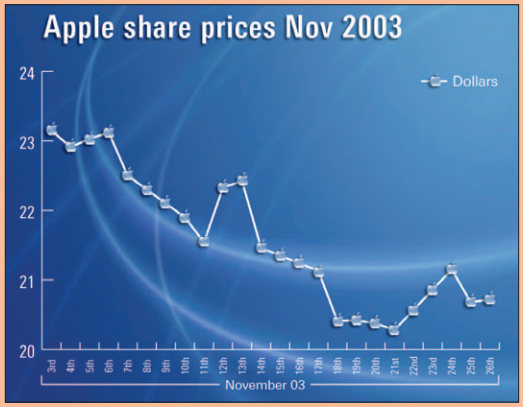
Rogers said: "All this stuff will work itself out over the next 12-18 months, and our job is to work things out to ensure we are there at the end. Apple UK recently reached a ground-breaking deal with Virgin that ensures iPods are available in its 165 music shops."

But when Virgin launched its own music-download service it chose to use Windows Media 9, but does not support Macs. "We are discussing this," Rogers said.

Apple is optimistic about the Virgin retail deal, says Rogers, but recognizes consumers visit high-street electrical-good retailers – not music-shops – to buy audio products such as MP3 players. "Maybe we can change that. People don't generally go to Virgin to buy such equipment, but they do buy their music there," he said.

Rogers confirmed Apple is covering the electrical-retailers option, too: "iPods have been made available through Carphone Warehouse retail outlets, and in the top 30 Dixons stores, and we are in conversation about getting them into a further 270 Dixons stores.

Apple may be a victim of its own success with the iPod, as reports suggest iPod demand is outstripping supply. "We'll catch up on supplies," promised Rogers.



'Innovation the key'

Innovation remains Apple's defining approach to business, stressed chief financial officer Fred Anderson at a recent Lehman Brothers Semiconductor and Computer conference.

Anderson claimed that Apple is emerging from the IT slump with new products for music fans, consumers and small business and is "enjoying accelerated growth" as a result.

He said: "Many who experience buying songs from iTunes will go on to buy an iPod, and maybe a Mac when they buy a second or third computer for the home.

"Apple is an innovator, and to maintain this status during the downturn we have maintained our R&D investment."

Investment Bank UBS said Apple was "uniquely positioned to show earnings improvements over the next two years".

Rogers confirmed Apple is seeing some slight recovery in its all-important creative markets: "Our creative users are entering an upgrade cycle, and slight recovery in the advertising market is giving confidence to the sector.

"Apple believes the Power Mac G5, Mac OS X 10.3 and the arrival of QuarkXPress 6.0 for OS X will stimulate professional sales." MW

EC slams Windows Media

Microsoft faces condemnation by the EU in a landmark antitrust case that could limit the company's moves to dominate the digital multimedia industry with its Windows Media product.

RealNetworks has complained that by bundling Windows Media with its desktop dominant OS software offerings Microsoft is hindering other standards.

In a private session before regulators, RealNetworks showed how Windows XP Embedded – an industrial-only stripped-down version of XP – can function as an OS without Windows Media. This challenges Microsoft's claim that removing that software would damage the way its OS works.

"Windows XP Embedded is designed for single-purpose use, such as running ATMs," said Microsoft spokeswoman Tiffany Steckler.

The European Commission told Microsoft in an official statement of objections in August that to restore fair competition among music and video players such as Media Player, Real One and QuickTime, Microsoft must either extract Media Player from the OS and sell it as a stand-alone product, or insert a rival player into Windows with its own.

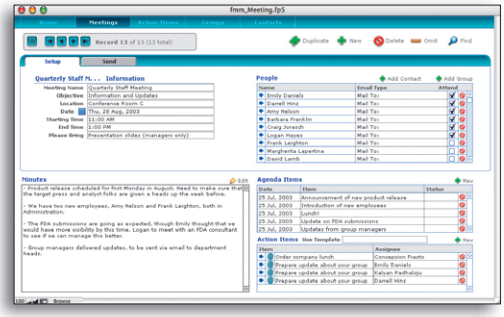
RealNetworks showed over 100 European competition regulators, opponents and Microsoft itself how easily Windows XP Embedded runs without the media player. It also showed how its own Real One Player worked on Windows XP Embedded. "It was a 'gotcha' moment," said one person who was present.

Settlement talks between Microsoft and the EC are now underway. MW

Paul Meller

New FileMaker tools

FileMaker launched two new productivity applications at MacExpo – FileMaker Meetings and FileMaker Tasks. FileMaker Meetings is a meeting-management application that offers features to help build agendas, take and distribute meeting notes, and track action items and deadlines. It also offers a snapshot of previous meetings and associated emails.



FileMaker Tasks is a task-management application that can create and assign tasks, locate and report on tasks, and communicate task-relevant information to a team. Details of tasks are stored in a single, centralized location to which all appropriate parties have access.

The company expects the new applications to attract fresh developers to the platform. FileMaker International's general manager Northern Europe, Tony Speakman, said: "Organizations need to work faster, so there's a great demand for easy-to-use software that helps people get the information they need when they need it. We see a unique opportunity to gain new customers looking for point solutions to the most popular business problems, in addition to those attracted to FileMaker as a toolkit for creating custom solutions."

The company plans to continue to develop similar applications that address specific business tasks, such as sales prospecting, project management, asset tracking and customer service. These applications will "generally include built-in email and reporting templates," FileMaker said.

01628 534 158

Taken to task

FileMaker Meetings and Tasks are ready-to-use applications that are based on FileMaker Pro 6, and require that software to run. Meetings costs £35, while Tasks costs £47. The new applications can also be customized and extended by developers.

Interiors is changing rooms

Microspot introduced a new interior-design application at MacExpo. Microspot Interiors can create a scaled image of an interior design.

It includes interactive rendering to give users an instant 3D view of the effects of additions and changes, and a library containing hundreds of items of common household furniture, lighting, flooring, walls and other surfaces. These items can be moved and resized, and users can scan in wallpaper and fabrics to apply the textures to objects.

Designs can be rendered fully in 3D using Microspot render, which ships with the product. Interiors costs £93.

01622 687 771

Olympus' speedy digi-cam

Olympus launched the C-5060WZ, a five-megapixel camera, at MacExpo. The £600 camera is equipped with a 4x optical wide-angle zoom lens, equivalent to a 27mm-110mm standard zoom – the widest angle of view of any high-resolution enthusiast camera on the market, according to the company. It boasts a three-second start-up time, and a release time lag of 0.4 seconds.

The camera also features four exposure modes: programme, shutter priority, aperture priority and full manual. Also available are sepia, black-&-white, blackboard, whiteboard, and panorama modes.

The 1.8-inch LCD monitor can be tilted up and swivelled round by 270 degrees to provide a clear view of the subject from difficult perspectives.

The camera features movie recording for up to 424 seconds at 15 frames per second, and saves to an xD-Picture Card, Compact Flash or Microdrive. It includes a rechargeable battery that the manufacturer claims achieves 600 shots on one charge.

0800 072 0070

Photo-real concepts

Cadsoft Solutions introduced a new Concepts Unlimited application for Mac OS X at MacExpo. The product costs £2,495 and features include photo-realistic rendering and animation, and precision-drawing capabilities. It sports user-definable 2D, 3D, surface, and solid modelling tools, 17 surface-construction methods, blending, chamfering, and shelling, and produces high-resolution images in a variety of formats.

01223 257 771

Best way to print

Electronics For Imaging's range of Best print-proofing software has been updated. Best Designer Edition 3.0 produces colour-corrected proofs. It also offers a redesigned interface, supports PostScript 3 and PDF/X, and features a nesting function and selectable RIP resolutions. Best Photo Edition 3.0 is a tool for digital photographers that can be used for colour-management and workflow controls. It creates high-quality prints from RGB and CMYK images, and offers a TIFF-export function. Both products are £529 for use with A2 printers, and £764 for A1 printers.

020 8476 7676

Down to business

Hansa Business Solutions launched HansaWorld 4.1 at MacExpo. The latest version of the suite of business software includes 40 integrated modules, including hotel management and a service order module for companies in the service and repair industry. The software costs approximately £1,000 per user, dependent on requirements.

0845 123 2732

PA in-a-box

Green Button launched Perfect PA, a customer-relationship management program, at MacExpo. It manages communications and marketing by filing letters, emails, and faxes in one location. Users can view and store documents on a project-by-project basis, and manage targeted mailings. The network version costs £300 per seat.

020 8487 8654

continues page 38

Apple updates

Apple has updated its Bluetooth software for Mac OS X Panther and Jaguar. **Bluetooth 1.4.1** for OS X 10.3 and 1.3.3 for OS X 10.2 adds increased stability and performance, says Apple. The Panther upgrade also provides enhanced stability for Bluetooth connections, and improved performance with input devices like keyboards, mice, pointing devices, game pads, tablets, touch screens, and joysticks.

Apple has also issued a Panther-specific update to Java. The company says **Java Update 1.4.1** "delivers functional enhancements and improved stability for running Java applications and applets". It contains support for both Java 1.4.1 and Java 1.3.1, and Apple "strongly recommends" that all users install the update.

Third-party updates

Macromedia has released updates for **Flash MX 2004** and **Flash MX Professional 2004**. The company says the 7.0.1 updates include performance and stability improvements and expanded documentation.

Bare Bones Software's HTML and text editor, **BBEdit 7.1**, now includes support for SFTP (the SSH file-transfer Protocol), FTP, and live HTML rendering.

Corel Painter 8.1 reintroduces the Custom Palettes from Painter 7, and fixes bugs in earlier versions, including problems with pressure-sensitive graphics tablets. Painter 8 includes 30 media and over 400 brand-new brushes; a redesigned interface; customizable palettes; and layer masks and channels.

MindChimes 4 plays the music of wind chimes in the background – creating a relaxing atmosphere while working on a Mac. The new version adds Mac OS X compatibility and improves performance.

Shoot to thrill

Konica Minolta has announced its first digital camera since the two companies merged. The Revio KD-420Z is a four-megapixel (2,408-x-1,758-pixel) model with a 3x optical zoom lens (equivalent to 34-101mm) housed in a 23mm wide stainless steel and aluminium body. It boasts a 0.9-second startup time, and can make autofocus/auto-exposure adjustments in 0.2 seconds, Konica Minolta says.

The camera is able to zoom from wide-angle to telephoto in 0.8 seconds, the release time lag after AF/AE adjustments is 0.03 seconds, and lens retraction is 0.6 seconds, the company claims.

Shooting functions include a Scene Select Mode featuring six programs: Portrait, Landscape, Nightscape, Snap, Sports and Angel, which enhances skin tones for portrait photography. A Super Continuous Mode allows up to three shots to be recorded at 2.5 frames per second and, with a high-capacity memory card installed, any length of movie can be shot using the Unlimited Movie function. A macro feature allows images to be taken from as close as 5cm, and a Manual Exposure Mode with automatic noise reduction lets users select program or aperture priority mode, fixed focus, auto bracket, custom settings, and choose black-&-white or sepia modes as well as warm or cold colour effects.

The camera supports both SD Memory Card and Memory Stick. It comes with Lithium-Ion battery, battery charger, USB cable, and 16MB SD card. It costs £300.

020 8751 6121

Happy snapper
The £300 Revio KD-420Z has a variety of shooting modes and supports SD Memory Card and Memory Stick storage formats.

Microtek's low-cost digi-cam

Microtek has released the Take-It S3. The £119 camera offers 3.21 megapixels, a 4x digital zoom, and can record movies with sound at 320-x-240 pixels and 20fps.

It features 8MB of internal Flash memory, and is compatible with SecureDigital cards.

Images can be transferred to a computer via USB, an AV-Out port lets images and movies play on a TV, and the DPOF (digital print order format) function lets users select which pictures to print before transferring them to the computer or a SD-compliant printer.

01327 844 880

Tiny Finepix debuts

The Finepix F420 Zoom is Fujifilm's smallest camera to feature Super CCD HR technology and video recording, the company claims. It has a 3.1-megapixel (2,048-x-1,536-pixel) effective resolution, a 3x optical zoom lens – equivalent to 36-108mm – offers 320-x-240-pixel movie capture at 30 frames per second with sound, as well as a voice-memo recorder capable of storing up to 30 seconds of sound.

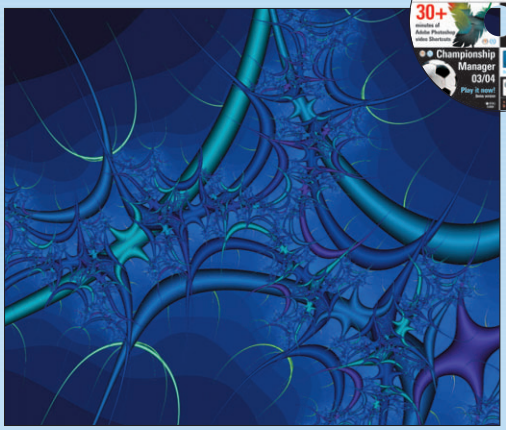
The camera also offers continuous shooting at intervals of 0.25 seconds, PictBridge compatibility for direct printing without a Mac, and a Video Out socket for viewing images on a TV. It has a 1.8-inch LCD monitor, uses a xD-Picture Card, and either a rechargeable battery, or AAA batteries. It will be available in February; price to be confirmed.

020 7586 1477

Weapon of maths seduction

Stick Software has released Fracture 1.2 – an update to its fractal screensaver for OS X. It draws a variety of types of fractal images created from mathematical formulae, can make images using advanced fractal imaging techniques, and is customizable. The new version adds an option to save every completed image. It costs £6.

www.sticksoftware.com



New faces from Agfa

Agfa Monotype has added collections from another six type foundries to Fonts.com. The new fonts include Burghal Design's Vamp, an "angular display face that suggests a nasty disposition", Classic Font Company's Savoy, a blackletter family that includes a series of intricately drawn initial capital letters, and Stak from the Identikal Foundry, featuring an unorthodox x-height that is equal in size to the typeface's cap height. Other fonts from the Ingrimayne, Process Type, and Typadelic foundries have also been added.
0800 371 242

Bryant regular (12pt)
AaBbCcDdEeFfGg 1234567890 !@&()

Savoy (14pt)
Aa Bb Cc Dd Ee Ff Gg 1234567890 !@&()

Savoy Overlay (14pt)
Aa Bb Cc Dd Ee Ff Gg 1234567890 !@&()

Sweet Pea (16pt)
AaBbCcDdEeFfGg 1234567890 !@&()

Epson woos photo crowd

Epson has introduced a new A4 photo printer. The Stylus Photo R800 prints 1,440-x-720dpi at speeds of 38 seconds for 4-x-6-inch photos and 68 seconds for 8-x-10-inch photos, the company says. The new cartridge includes cyan, magenta, yellow, matte black, photo black, red and blue inks, and a new gloss optimizer. It connects to the Mac via FireWire or USB 2.0 and is expected to cost £350.

Two more laser printers are to join the Epson EPL range. The £994 EPL-N3000 prints A4 at 34 pages per minute (ppm), with a first-page-out in 7 seconds. The £1,787 EPL-N7000 is an A3 printer with a print speed of 19.5ppm for A4, and 35ppm for A4. The first-page-out time is 8.1 seconds. Both print at 1,200dpi.

One of Epson's high-yield toner cartridges is said to produce 17,000 pages a month from the N3000, and 15,000 from the N7000. The N3000 offers a 300MHz Risc controller and 64MB RAM; the N7000 offers a 200MHz Risc controller and 32MB RAM.

Both feature a 700-sheet capacity, extendable to 1,800 sheets in the N3000, and 2,200 sheets in the N7000. The printers also offer duplex printing with an optimal automatic duplex unit. The printers support Rendezvous, and are compatible with a 10/100 Base 4x network connection via USB or a parallel interface.

They also feature live status information including remaining consumable life and automatic troubleshooting on the front panels or on a Mac.
0800 220 546

HP wireless-printing move

The Deskjet 5850 – HP's wirelessly networkable printer – has arrived in the UK. Users can connect up to five computers via an 802.11b network for 21 pages per minute (ppm) black-&-white and 15ppm in colour at 4,800-x-1,200dpi. The printer features a two-sided printing accessory and a high-capacity 150-sheet paper tray. It costs £199.

HP has also released the LaserJet 4200Ln. The new model serves workgroups of up to seven people. Costing £899, it boasts 28ppm print-speed for A4 documents. It has a resolution of 1,200dpi, 48MB of memory, and an internal HP Jetdirect Ethernet print server. The printer has an input capacity of 600 sheets and a duty cycle of 125,000 pages a month. The all-in-one cartridge, which costs £156, prints up to 12,000 pages.
08705 474 747

Jack of all trades
Kyocera Mita's new network printers offer all-in-one functions.

They're the business

Kyocera Mita has launched a range of network printers offering scanning, copying and faxing.

The £5,380 KM-3035 (above) prints A4 at 30ppm and A3 at 20ppm. It features a 1,200-sheet paper tray, expandable to 4,200 sheets. The £6,437 KM-4035 offers 40ppm A4 and 23ppm A3. The £7,495 KM-5035 provides 50ppm A4 and 26ppm A3 printing.

All three printers include a 10/100BaseT network interface and an internal stackless duplex unit.
08457 103 104

Griffin cranks it to 11

The Griffin iFire amplifier and adaptor for Apple Pro Speakers is shipping for £26. iFire lets an iPod or any computer with FireWire power the Apple Pro Speakers. It connects via a mini-jack cable.
AM Micro, 01392 426 473

Audiobook speaks easy

Alexander Wilson Studios has released Audiobook Studio 3, a £5 OS X application that helps users create digital audio files using text files and Mac OS X's text-to-speech capabilities. Users can insert pauses, speed up or slow down readings, and emphasize or de-emphasize words. Texts can be converted into audio files that can be dropped into iTunes, posted on the Web, or carried on an iPod.
www.kagi.com

RealBasic app ships

RealBasic 5.2.2 is shipping. The tool is Panther-ready, and includes an updated Realbasic Project Manager; a VisualBasic conversion application for developers who want to port their applications to the Mac; and updated Unicode capabilities. The standard version is £98, and the professional version is £408. Academic pricing is £48 for the standard version, and £208 for the professional version.
Cancom, 01483 500 500

Get into shapes

Unsanity has released ShapeShifter 1.0, a £14 product that change the appearance of the Mac OS. Features include previewing themes without applying them and the ability to use Jaguar themes in Panther.
www.unsanity.com

Message app updated

Glass Bead Software has released SnapMail 4.1, an upgrade to its utility that creates a closed, in-house messaging network using TCP/IP. It features customizable one-click Snap responses, Rendezvous support, message icons, and bug-fixes. SnapMail costs £48. Version 4.1 is a free update for users of SnapMail 4.0.
Androcles Consultants, 020 8673 4520

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FireWire 800 RAID boost

WiebeTech has introduced three new FireWire 800/USB2 storage lines, including a new FireWire 800 fanless desktop storage enclosure, a removable drive desktop storage system with single or dual bays, and a plug-&-play hot-swappable dual-drive FireWire 800 hardware-based RAID device. The company has also cut prices on selected FireWire 400 products.

The new DesktopGB+800 provides dual FireWire 800 ports (FireWire 400-compatible) and a USB 2.0 port inside WiebeTech's DesktopGB fanless enclosure. It provides transfer rates of approximately 50MB per second. Prices start at £144.

The BayDock 800 storage system uses removable trays and is available in single- and dual-bay configurations. The single-bay option starts at £180. The dual-bay option (starting at £315) is available with individual FireWire 800 bridge boards for each bay. WeibeTech claims users will be able to configure soft RAIDs, providing read performance in excess of 80MB per second.

RaidTECH provides hot-swappable dual-drive bays in a hard RAID that's plug-&-play on Mac OS X and OS 9.1. RaidTECH has FireWire 800 and includes a USB 2.0 port. RaidTECH may be set as RAID 0 (striped) or RAID 1 (mirrored) by switch selection. The company claims it provides a "far greater level" of backup security because the backup is continuous and redundant. Prices start at £540.

Yellow Technology, 0845 270 2233

Light fantastic

Epson has introduced two new projectors. The EMP-9300 is a high-resolution SXGA+ (1,400-x-1,050-pixel) projector for business use, priced at £14,687. It features 1.4-inch panels with powered lens and zoom, and a powered lens-shift. Projections are up to 300 inches (25 feet) wide and can be projected from angles of +/- 45-degrees and +/- 20-degrees horizontal.

The projector boasts a 1,100:1 contrast ratio, and imaging modes include business-graphics, theatre-colour, video and super-bright, which delivers 2,500 ANSI lumens. Remote control effects include a pointer, straight line, and free line.

The £3,199 EMP-TW500 has been added to Epson's range of home-cinema projectors. Rated at 1,000 ANSI lumens, it will project a 16:9 image up to 300 inches wide from 359-537 inches away in XGA (1,280-x-720-pixel) resolution. The TW500 features a 1.5x powered zoom and focus, enabling it to project an 80-inch image from 2.4 meters, a 10-bit colour processor and Epson's colour management technology, which the company claims improves colour reproduction by enhancing the dark levels and heightening the overall contrast ratio. Six colour modes are available.

0800 220 546

Jessops' scan-plan

Jessops has released its new Primefilm 2700 film-scanner. The unit features a maximum resolution of 2,700dpi and a 36-bit colour depth. It measures 2-x-17-x-7cm, has a maximum scan area of 35mm, and weighs 1kg. It connects to a Mac via USB or USB 2.0, and costs £200. Adobe Photoshop Elements 2 is included.

0800 652 6400

Multi-port hubbub

Belkin has launched three new hubs. The Hi-Speed USB 2.0 7-Port Hub costs £50 and features two top-loading 480Mbps ports and five horizontally mounted 480Mbps ports.

The Hi-Speed USB 2.0 4-Port Hub offers four 480Mbps ports for connecting up to four peripherals, and offers cascading with other Belkin USB 2.0 4-Port Hubs, enabling the connection of up to 127 USB devices at once. It features over-current protection, and can connect up to two high-speed devices without a power supply.

The Hi-Speed USB 2.0 4-Port TetraHub is able to offer 480Mbps speed data transfer for USB 2.0 devices. The TetraHub guarantees 12Mbps to each of the four ports.

All devices feature LEDs for monitoring master power status and port activity, support hot swapping of USB devices, and are fully plug-and-play.

01933 352 152

XPress tools update

ALAP has released three upgrades to XPert Tools Pro 2.1, adding support for QuarkXPress 6.0 and Mac OS X. The updates – XPert Align, XPert Layers and XPert Scale – cost £70 each.

www.alap.com

Colours are calling

X-Rite has introduced MonacoOPTIX XR, a colorimeter designed to produce ICC profiles for CRT and flat-panel colour displays. There are two editions. For £247, customers get Monaco's software and the MonacoOPTIX XR colorimeter. For £341, the MonacoOPTIX XR PRO package includes the colorimeter and Monaco's advanced profiling software with workgroup support and expert controls.

01661 820 214

Swatch this space

Old Jewel Software has updated Painter's Picker. The tool adds the ability to choose related colours within the colour-picker in Mac OS X. It also adds more-precise controls for saturation, and the ability to choose colours in the CMYK colour-space while controlling hue, saturation, and brightness. A single-user licence costs £10.

www.oldjewelsoftware.com

Software RIP goes X

Shiraz, AIT International's PostScript software RIP for large-format digital printing, is now OS X-compatible. Version 6, priced at £895, supports large-format inkjet printers from Encad, Epson, HP, Mimaki, Mutoh and Roland; can be configured to meet different workflows; is able to RIP separate jobs at the same time; and can drive several makes of printer, AIT says.

01732 875 000

Spector's spy game

Spectorsoft is shipping Spector for Mac OS X. Spector takes screen shots of a Mac and saves them for viewing later. The application is designed for employers wanting to check on their staff, and parents who want to see what their kids are up to on the Web.

Internet-detective-agency, 0870 747 2110

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CDs & books

Tips and tricks

Mac OS X, Panther Edition: Top 100 Simplified Tips & Tricks will be published by Wiley on February 11. It provides details of 100 useful techniques that can be performed in the latest version of Apple's operating system, including timesaving tips, secrets, and productivity tricks.

£13.95

ISBN: 0764543954

OS X for Unix geeks

Mac OS X Panther for Unix Geeks will be published by O'Reilly in February. The book offers advice for Unix users setting out to explore Panther. It eases readers into the Unix innards of Panther, giving a quick overview of the Terminal application and advice on using the Apple's X11.

£14.70

ISBN: 0596006071

The complete guide

Mac OS X Panther in a Nutshell will be published by O'Reilly in February. It offers a complete guide to the new OS, providing details about user-interface elements, system and network admin, development, and scripting. It includes a Unix reference.

£23.54

ISBN: 0596006063

Panther in pictures

Mac OS X Illustrated Panther Edition will be published on January 21 by Wiley. It's a full-colour guide that offers concise, visual explanations of the Panther interface, and tools, including the iLife suite, and features clear, jargon-free instructions.

£16.99

ISBN: 0764543970

Kids and ANSI

The EMP-54 (above, left), and the EMP-74 (above, right) are designed for use in schools, with a special mode for projecting images onto blackboards.

Schools' projector tonic

Epson has introduced two projectors, designed for the education sector. The S-VGA EMP-54 and the XGA EMP-74 feature a range of colour modes, including Blackboard mode, which automatically corrects the colour saturation of the projected images, making it easier to present on a blackboard.

The projectors feature two input interfaces for connecting two computers. Users can switch between the two inputs via the remote control or directly from the projector. In High Brightness mode, the projectors produce 2,000 ANSI lumens. In Economy mode the output is 1,500 ANSI lumens, and the lamp will burn for 3,000 hours, according to Epson.

Both projectors feature Auto Keystone Correction to compensate if the projector is off-centre. They can project a 60-inch screen from 180cm, claims the company. There's a range of security modes and a Help function that Epson says troubleshoots operating issues and corrects errors. The EMP-54 costs £1,599, and the EMP-74 £2,299.

0800 220 546

Book releases for '04

Bonnie Blake and Doug Sahlin's **50 Fast Digital Video Techniques** has been published by John Wiley & Sons. The step-by-step guide outlines 50 editing tricks that show how to create professional videos with special effects, including managing lighting conditions, shooting sporting events, and creating effective transitions and scene changes in iMovie.

It describes the process of delivering video in VHS, DVD, Video-CD, and for the Web. An interactive CD includes ready-made HTML templates to quickly get movies up on the Web, before-and-after source-video files for the technique steps in the book, and video training software.

£17.50

ISBN: 0764541803

Special Effects: Retouching and Restoration, by Tim Daly, will be published by RotoVision in January. The book aims to answer the question "Why digital?" by addressing the advantages of digital versus traditional photography.

The project-driven book examines the breadth of special effects and manipulations achievable using digital technology, and aims to show all the processes – allowing the digital photographer to follow the manipulations step by step.

The book also shows how to get the best from software imaging packages, how to revive disappointing or flawed images, and how to get top-quality results. It features real-life projects, illustrating how to use digital technology to its fullest capacity.

£16.99

ISBN: 2880467535

Wireless Hacks, by Rob Flickenger, has been published by O'Reilly. The guide claims to give 100 industrial-strength tips and tools, including making sense of the alphabet soup of the 802.11 standards; using Bluetooth, mobile radios, and mobile data networks; practical methods for detecting, analyzing, and monitoring wireless networks; extending the range of a network, and making the best possible use of the available radio spectrum; designing and building antennas; and understanding the security issues of wireless networking.

£35

ISBN: 0596005598

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US, US, US. That's them sorted. But what about the other 'us'? We in the UK want the niftier slices of the iLife pie…

Blighted in Blighty

As we enter another new year, it occurred to me that there are a few things that I have been waiting for that just may be arriving soon. Unfortunately previous form suggests I'll still be waiting this time next year. That's right, I'm waiting for Apple to get its finger out and bring us the products that our American cousins already enjoy. In fact, they may be bored with them by now.

The first on my list is a feature found in the US version of iPhoto, the Album option. iPhoto has dozens of goodies that we can access, such as integration with Homepage on a .Mac account. But the missing album feature can do something even more amazing. Take a collection of holiday snaps, Christmas pics or wedding shots and click the Album button. As if by magic, your photos are sketched out in a book and you're given the opportunity to write captions and dedicate the book to family or friends. Click another button and a real book is printed and sent to you, with glossy pages and bound in a choice of covers. I'm dying to use this feature to send my mother-in-law a book of pictures of my new house, her lovely daughter, and all sorts of other things. Unfortunately, I can't because this feature isn't available to us non-Americans. Ironically, my mother in law is actually in the US, but I still can't access the features.

Why on earth can't I do that? What possible reason could there be to not let me take advantage of such a great feature? I suppose the book production plant is in the US, so there's a minor hurdle, but I often order things from the US without a hitch. I may wait a little longer for delivery (though often not), and it might be a little more expensive that sending a book to a US address, but I want to be able to do it, regardless of cost. I just don't want to be shut out because I'm in the UK. It would be the easiest thing in the world to just accept UK orders, maybe charge a little more, and ship the books a little further.

This minor indiscretion a couple of years ago was touted as a feature "not yet available in the UK". Of course Apple didn't come right out and say "no, not now, not ever" but it may as well have. I think somebody should be looking out for our interests because Steve Jobs obviously doesn't hold the UK market in high esteem. I say it's Steve Jobs for two reasons. First, he has shown time after time that he doesn't really care about the world outside Silicon Valley. I also say Steve Jobs because the more I say Steve Jobs the more likely it is that his clipping company will find this piece and put it under his nose. Hi, Steve.

Now I've got your attention, how about fixing Sherlock so it does something useful in the UK? It's entirely US-centric, and I want to be able to look up movies by postcode and search for phone numbers. Sherlock was so cool when it first came out that it didn't seem to matter that some features were missing in the UK. But we're on version 3 now, and we still don't have the features. It's like it's fallen down the back of Apple's sofa and been forgotten about. Well, I haven't forgotten; I want the nifty features they have in the US, so I can tire of them in my own time.

The last two features I think we can actually live without, but the next one is already changing the way I do things. Yes, the iTunes Music Store. I want it. In fact, until I get it I refuse to buy any CDs. I won't listen to anything new until Apple can sell me music the way I want to buy music – electronically.

Unlike the iPhoto and Sherlock features, where the lack of availability could easily be fixed if Steve put his mind to it, the international music publishers are different kettle of fish. Steve can boss around his developers, he can even boss around his vendors, but he isn't so hot when it comes to bossing around Sony, Universal and the other music big-boys. Steve Jobs might be the toughest kid in his own schoolyard, but the international music publishers are bigger and quite possibly meaner.

I'd like to think Steve is up to the job, but previous examples show that once he has his feature – available to him and the rest of the US – he forgets about the rest of us. There's a chance he won't back down from the fight for a European iTunes Music Store, but I just don't believe his heart is in it. The last inside information I had on the status of a European deal was that it wouldn't be before Christmas. But I'm not holding my breath for a January launch, not given previous form.

So come on, Steve – put your dukes up and start fighting for a European iTunes store. I think I speak for many UK Mac people when I say that a nod in our direction is long overdue. Perhaps a visit and even a keynote in the UK would be in order. Steve does occasionally grace the UK with his presence. But he does in the same way George Bush handles a visit to Iraq, short and sweet and most people don't even know he's here before he's gone.

Perhaps he's scared of meeting users that don't honour him like a god. The grumpy curmudgeons that make up a sizable section of the Mac community in the UK might be a bit off-putting (they scare even me sometimes), but perhaps they wouldn't be so grumpy if they thought Steve cared.

I've made it an ambition not to meet Steve, and have successfully avoided eye contact whenever I'm at close quarters with him at shows. I'm wary of his habit of judging people on first impressions. Perhaps if he deemed it suitable to come and speak to UK users, I might relent. Come on, Steve – how can you refuse an offer like that? MW

'Come on, Steve – put your dukes up and start fighting for a European iTunes store. I think I speak for many UK Mac people when I say that a nod in our direction is long overdue.'

Michael Prochak

The only thing we can be sure of is existence. The trouble is, we don't know *what* exists until it's already kicked us in the backside.

Reality bites

I recently read that while solipsism and related doctrines are logically self-consistent, they can be comprehensively refuted simply by taking them seriously as explanations. And although they all claim to be simplified world-views, such analysis shows them to be indefensible over-elaborations of realism. Real entities, on the other hand, behave in a complex and autonomous way – or as Dr Johnson once said, "If it kicks back, it exists".

The only reason this column apparently exists at all this month is because one of our editors managed to find a relevant email buried in the quagmire of indefensible over-elaborations of realism which we fondly refer to as spam, and I managed to do likewise in order to squeeze in under the illusion of a passing deadline. In order for this to happen I had to delete over 188 moronic missives offering me repetitive opportunities to buy cheap viagra, acquire a bigger penis, order loads of useless or tacky products and services from American companies that only operate within the continental US, or enjoy pictures or videos of women engaging in questionable activities with farm-yard animals and/or humorous root vegetables. Apparently, the editorial staff, and most other people I know with email addresses, also have to address similar levels of pollution on a daily basis. Personally, I'm a bit suspicious of all the anti-spam software adverts that intermingle in this digital quagmire, but then hey – maybe I'm just paranoid.

But then again, maybe pollution and reality have much in common and shouldn't be taken all that seriously as explanations for nearly anything. It seems that we've become so accustomed to disinformation, political rhetoric and nanny-state or litiginous-tinged scare tactics that we don't even notice realism even if it does kick back. In the US, in cities such as Los Angeles and other bastions of civilized sophistication, you can't smoke a cigarette in a bar, and you can sue McDonalds if you're too fat. This is despite the fact that people walking in the streets breathe in at least the equivalent fumes of smoking 569 cigarettes a day, and the simple fact that if you eat like a disgusting pig and never get out of your car, you'll probably end up being an ugly fat fcuk.

Here at home, those in the know want to stop smoking in pubs and other public places, and it's now an accepted 'fact' that using a mobile while driving is more dangerous than talking to a passenger, smoking a fag or eating or trying to cope with several screaming kids while driving. But maybe all that will be demonized and made a criminal offence shortly as well. Let's face it – fact and politically correct fiction haven't just merged, they've been coercively remanufactured into ugly, twisted meta-dramas. And if we're not careful, the moon will fall out of the sky as well.

We all do it, one way or another. For example, I haven't a clue whether or not Apple will actually buy Vivendi's Universal Music Group. But I bet loads of you would just love to hear some sort of solipsistic drivel passed off as an informed opinion. And normally, I don't mind obliging. Meanwhile, Apple denies it has made an offer, but rumours persist that talks are ongoing. And ripples in the Force suggest that Microsoft's evil empire has parked the Death Star round the back as well as a potential buyer of what is allegedly the world's largest record company. As meta-dramas go, I suppose it would be rather cool to see Universal, which pulls in more than $6 billion annually on the sale of music in conventional CD format, be acquired by a company whose recent advertising included the slogan "rip, mix, burn," which in another twist, seems to be regarded by many as an invitation to pirate music.

On a positive note, the reinvention of Apple seems to be an organically evolving process and perhaps buying a record label could move Apple in a direction that maximizes its strengths. On a less-positive note, Apple still has less than three per cent of the global market. But like most of what passes for reality, it's all down to angles. And as new theories, rumours and explanations supercede old ones, predictions become important only for their crucial tests to enable us to discriminate between competing theories that have already passed the test of being good explanations.

The only thing that seems to kick back here are the facts that spam is an evil marketing-driven pain in the bum; generalities and politically correct clichés are making us inadvertent actors in stupid sick meta-dramas that would be funny if they weren't so dangerous; and that the hallmark of all Apple's products is, now more than ever, careful attention to detail. Sometimes it's the little things that really make the difference – so to be painfully honest, I don't really care if Steve wants to buy Universal. Maybe the kick comes from just thinking rather than making too much of a point about thinking 'different'. The say that abstract entities that are complex and abstract exist objectively and are actually part of the fabric of reality. However, they also say that truths cannot be known with certainty and that proofs don't always confer certainty upon their conclusions.

OK, maybe it sounds like somebody bought me Occam's razor for Christmas. But without complicating explanations beyond necessity, maybe reasoning, which uses observation not as a basis for extrapolation but to distinguish between otherwise equally good explanations, is all we really need to give us a genuine knowledge about reality that really has the ability to kick back. I suppose you just have to be careful where you're standing. MW

'It seems that we've become so used to disinformation, political rhetoric and litiginous-tinged scare tactics that we don't even notice realism even if it does kick back.'

Macworld reviews iMac G4 range

Consumer desktops

iMac G4 15-inch 1GHz

Manufacturer: Apple
Pros: Least expensive iMac; flexible neck; small footprint; smart design; 80GB disk.
Cons: Lowest resolution; smallest viewing area; requires more RAM.
Price: £999 including VAT.
Star Rating: ★★★★/8.4

iMac G4 17-inch 1.25GHz

Pros: Widescreen; large viewing area; 1.25GHz G4; flexible neck; small footprint; smart design; 80GB disk; 64MB VRAM.
Cons: Requires more RAM.
Price: £1,449 including VAT.
Star Rating: ★★★★/8.6

iMac G4 20-inch 1.25GHz

Pros: Widescreen; largest viewing area; 1.25GHz G4; flexible neck; small footprint; smart design; 80GB disk; 64MB VRAM.
Cons: Requires more RAM.
Price: £1,749 including VAT.
Star Rating: ★★★★/8.7

For the first time since the multiple DV and DV+ models of G3 iMac, there are now three distinct iMacs from which to choose. If you thought that the 17-inch iMac's screen was luxurious (it certainly is compared to the rather cramped 15-inch display), the new 20-inch monitor is the height and width of indulgence.

Screen You measure a screen in two ways. First, the viewing area is the actual amount of screen real-estate measured in inches. Second, there's a maximum resolution – the number of pixels (picture elements) that can be displayed from side-to-side and top-to-bottom. The more pixels you squeeze into the viewing space, the tighter the images and smaller the text.

The 15-inch iMac offers a maximum resolution of 1,024-x-768 pixels, the same as the old G3 iMac but spread over a larger area (a 15-inch LCD screen is equivalent to a 17-inch CRT, as found on the eMac).

The 17-inch iMac can handle a much greater 1,440-x-900 pixels, and the 20-inch a massive 1,680-x-1,050 – that's more in height than the 15-inch can manage across.

Although a lot more expensive than the other iMac models, if you subtract the £1,049 that the 20-inch Cinema Display costs – you end up getting a 1.25GHz G4 iMac for just £700. This won't attract the budget-conscious eMac buyer, who can pick-up a 1GHz G4 *with* 17-inch CRT screen for a mere £649 – but it does offer professional layout artists or musicians, for instance, a much-cheaper option than a Power Mac G5 and external LCD. Apple has rightly described the 20-inch iMac as a "boundary system" that will appeal to the less budget-conscious consumer and lower-end professionals who don't require top speed or expandability.

Performance Internally, differences are minor: the top models both sport a 1.25GHz G4, while the 15-inch iMac runs at 1GHz. The 17-inch and 20-inch models boast a 64MB NVidia GeForce FX 5200 Ultra. The iMac's no Power Mac G5, but it's easily fast enough for most applications.

The 1.25GHz G4 is not 25 per cent faster than the 1GHz – but it's not far off at 19 per cent faster overall. The Speedmark score is made up from a set of 16 everyday tasks. Users of Apple's iLife digital-lifestyle applications will certainly feel the benefit of the extra processor megahertz – but of greater importance is the screen space afforded by the top two systems. Gamers will definitely appreciate the 64MB of video memory and faster graphics acceleration.

Affordable, user-friendly digital photography means that Adobe Photoshop is no longer the preserve of the designer, so artists and snappers alike will gain from the 23 per cent performance boost here.

Each iMac comes with 256MB of RAM, which is just enough to run OS X and a couple of applications at the same time. If you use your Mac for more ambitious tasks than email, Web browsing and word-processing, at least another 256MB of RAM is recommended. Beware, one of the iMac's two memory slots is inaccessible to the humble user – so it's best to get as much packed into that slot when you buy, so that the other slot can be filled cheaply later.

Ports and drives All the iMacs offer the same set of ports and connections: two FireWire 400, three USB 2.0, 10/100BaseT Ethernet, and VGA output for video mirroring. Each is AirPort Extreme ready (card costs £79), and can be fitted with an optional internal Bluetooth module (£35). Each ships with an 80GB hard disk, that can be upped to 160GB for £79 – worth it if you're a heavy iMovie or iTunes user.

The major difference is in choice of optical drive. The 15-inch's combo CD-RW/DVD-ROM drive is bettered by the top two's DVD-R SuperDrive – which, with free iDVD, lets you create DVDs that play in domestic DVD players.

Macworld's buying advice

If you can, get to an Apple reseller and take a look at the screen sizes on offer. Because the performance between the 17-inch and 20-inch iMac is identical, and the prices are wide enough apart for you to draw breath, it really does come down to budget and screen-size compromise. The 17-inch screen is voluminous, but the 20-inch display is simply magnificent.

Simon Jary

Latest iMac range speed-tested

Macworld LAB TEST

Best results in test.

	Speedmark 3.2 Overall score	Photoshop 7.0.1 Suite	iMovie 3.0.3 Render	iTunes 4.0.1 MP3 Encode
iMac G4 1.25GHz	157	0:47	0:46	0:41
iMac G4 1GHz	132	0:58	0:55	0:49
	Longer is best	Shorter is best	Shorter is best	Shorter is best

	Compresssor MPEG-2 Encode	Quake III v1.30b5 Frame rate; high quality	Cinema 4D XL 7.303 3D render
iMac G4 1.25GHz	12:31	77.1	6:29
iMac G4 1GHz	15:03	62.1	7:49
	Shorter is best	Longer is best	Shorter is best

Speedmark 3.2 scores are relative to those of a 700MHz eMac which is assigned a score of 100. Photoshop, iMovie, and iTunes scores are in minutes:seconds. Quake scores are in frames per second. We tested the systems with 256MB RAM. We tested MP3 encoding with an audio-CD track that was 9 minutes and 25 seconds long, converting it from the hard drive using iTunes' Better Quality setting. We tested Quake III at a resolution of 1,024-x-768 pixels with Graphics set to High Quality. Systems were upgraded to 512MB of RAM for the Photoshop, Cinema 4D and Compressor Test. The Photoshop Suite test is a set of ten scripted tasks using a 50MB file. Photoshop's memory was set to 100%, and History was set to Minimum. We encoded a 6-minute:46-second DV file using the MPEG-2 60-minute-Fast encode preset in Apple's Compressor application.

– Macworld Lab testing by James Galbraith & Kristina DeNike

Macworld.co.uk Subscribers can search Macworld's Reviews database online (www.macworld.co.uk), updated throughout the month

In its quest to make Mac OS X the platform of choice for software developers, Apple has released Xcode, a graphical integrated development environment (IDE) that ships with Panther's Developer Tools CD.

It must be installed separately with the familiar OS X package install routine, and needs to be on the same partition as the system files. Although Xcode will install only on Panther, applications can be developed for previous versions of OS X.

Developers will already be aware of OS X's existing IDE, Project Builder. Surprisingly, Project Builder remains despite the numerous usability and technical features that Xcode brings to the table.

As with all IDEs, Xcode features tools designed to remove many of the repetitive tasks involved in writing applications.

One of the most apparent is Xcode's new project assistant that's launched when New Project is selected from the file menu. It lists all supported language types, including AppleScript, C and Java, as well as an empty project. The assistant comes in handy as it saves a lot of time by setting up the required files and build styles for the application type.

Existing Project Builder and CodeWarrior projects are easily imported into Xcode with the import assistant which retains the same project name.

Xcode's interface consists of four main areas: the top panel, which includes the toolbar, search field and status bar; the Groups & Files section, which houses pre-defined Smart Groups and project files; the detail view, where group and file information is shown; and the editor, which displays text.

The aim of this interface style is to help coders gain quick access to the files in a project. This works well when using the assistant to begin a project; however, if a raw source-code file is opened with Xcode, the plain editor will launch on its own – which appears out of context.

The Smart Groups pane makes navigating the multitude of files in a project easy. This is particularly useful for tracking down file versions or bookmarks.

Xcode's native code editor is hidden by default and must be turned on with the Show Editor button on the toolbar. Coders can jump between functions with the editor's built-in menu. This navigation menu can be set to show functions in alphabetical order. Of particular use is the editor's support for dragging a text file from the Finder for it to be displayed.

Unlike many IDEs that have tabs for displaying many source-code files simultaneously, Xcode's editor streamlines this with arrow buttons for jumping from file to file – and a dropdown menu alongside it allows any open file to be selected with the mouse. The ⌘-Option-Left or Right-arrow key sequence can also be used to switch between open files.

Developers coming to the Mac from a Unix background will be pleased to know that Xcode's default editor can be replaced by emacs or vi. Support for vi is still experimental and results in it being launched externally in a terminal.

Additional features of the editor include the ability to automatically complete common code such as function class names.

More pre-emptive functionality is present in Xcode's search tool that, like Finder, will begin displaying results as soon as letters are typed into it. This is very responsive and tracks down lost files quickly.

Usability issues

For all its promises, working with Xcode's interface will take some getting used to. And although Xcode's preferences has a section dedicated to customizing its keybindings, keep the mouse handy, as a lot of navigation still relies on it.

In addition to Xcode's usability features, the application includes a couple of tools to help decrease the amount of time spent compiling code. Xcode's predictive compile feature – which isn't enabled by default – uses the GCC compiler to start compiling as you're editing your code.

For further speed improvement, the Rendezvous-enabled Xcode can use more than one computer on a network to compile a job. Another text editor for OS X, Hydra, uses Rendezvous for collaborative editing, so keep an eye out for additional applications of this technology by Xcode.

Recognizing the fact that all developers – experienced or not – require some form of documentation, Apple has developed a documentation system for Xcode. Documentation is a blessing when you need to know the specifics of a function method; however, it's launched as a separate window and would be easier to navigate as part of the main interface. Nevertheless, being able to quickly search through the documentation is very helpful.

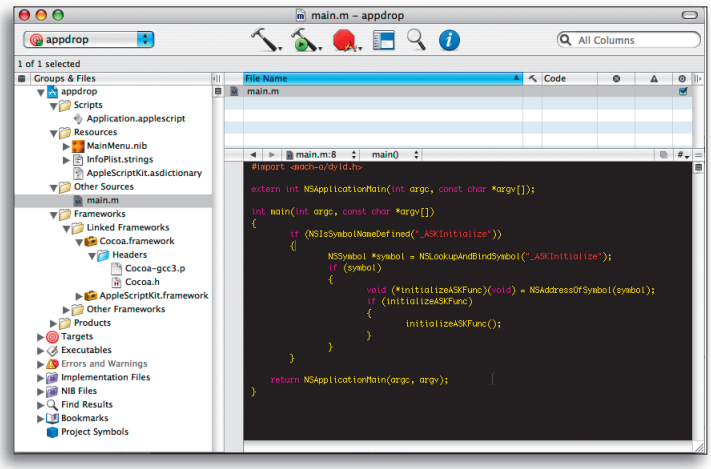
Another tool that is separate to Xcode's main interface is Debug, the code debugger. Being based on the mature GNU debugger, Debug performs as expected, but like Xcode's documentation, hasn't been integrated into the main interface – it requires an additional window.

Like all IDEs, Xcode will help you speed up application development, but it won't go very far with helping you learn how to code. Books and other reference materials are good places to start, as well as reading the code from various open-source projects. A selection of open-source applications for OS X can be found at Freshmeat's OS X section – http://osx.freshmeat.net.

Macworld's buying advice

Xcode marks a new way of thinking for OS X application development – and for a first release is stable and performs well. With its setup assistant, layout, and searching capabilities, Xcode should appeal to those looking to get started with Mac programming. Experienced programmers – particularly Unix hackers – may find Xcode slow to work with, and lack of vi integration will certainly upset a few.

Rodney Gedda



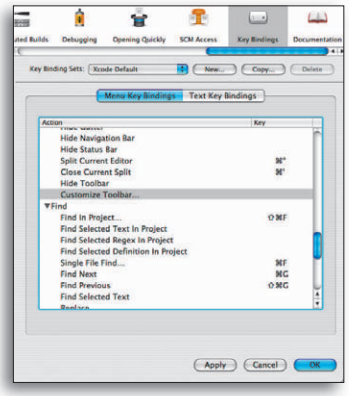
Editor's choice

The code-editor supports the most common customization features of a programmer's editor, such as syntax highlighting, indenting, and customizable colours.

Software development

Xcode1.0

Publisher: Apple
Pros: A more holistic approach to Mac software development; fast file-and-documentation searching.
Cons: Steep learning curve; data-protection issues in first release.
Min specs: Mac OS X 10.3.
Price: Free with Panther.
Star rating: ★★★★/7.4



Preferential treatment

Although it's possible to set keys for many functions, Xcode still relies heavily on the mouse.

Important Xcode update

With OS X users used to regular software updates, it comes as no surprise that the first update to Xcode, version 1.0.1, has emanated from Apple. Critically, this update claims to addresses an issue that may result in data corruption or the loss of files. It goes without saying that all Xcode users should perform the upgrade.

Luxury peripherals

Manufacturer: Microsoft
www.microsoft.co.uk, 0870 207 7377

Wireless Optical Mouse 2.0

Pros: Super-smooth scrolling; tilting scroll wheel.
Cons: Requires batteries.
Min specs: USB.
Price: £39.
Star Rating: ★★★★/8.9

Wireless Intellimouse Explorer

Pros: Extra buttons; smooth scrolling; tilting scroll wheel.
Cons: No good for lefties.
Min specs: USB.
Price: £55.
Star Rating: ★★★★/8.8

Wireless Optical Desktop Elite Executive Edition

Pros: Loads of buttons; scroll wheels on mouse and keyboard; smooth, tilting scroll wheels.
Cons: No good for lefties, pricey.
Min specs: USB.
Price: £119, or £99 for the non-Executive version.
Star Rating: ★★★★/8.8

All prices include VAT.

My love of Microsoft mice is no secret. The company might make diseased and dreadful operating systems, but its mice and keyboards are just spiffy. We looked at its latest offerings, in the shape of two mice and a keyboard.

I'll start with the **Wireless Optical Mouse 2.0** (WOM), which seems plain and simple. Mice have been around for as long as I have (since 1964, fact freaks) and you might be forgiven for thinking that mouse technology is mature and that there isn't much room for improvement. You would, however, be dead wrong; Microsoft has come up with some great new features.

The first, which may or may not catch on, is the side-scrolling tilt-wheel. This works like a regular scroll wheel, but can tip from side to side as well. This enables scrolling sideways, which is great for big spreadsheets, Photoshop documents and all kinds of other stuff. It works well, but only up to a point. The first hurdle is actually remembering to do it, which I'm getting used to after using it for a couple of weeks. This shouldn't be a big problem, but the next issue could be more serious.

The actual action of tilting the wheel requires a firm grip on the mouse. This action could be problematic for RSI sufferers. However, sensible use (if it starts hurting, stop doing it) will eliminate the risk. I've been using it without problems, but once you have RSI, sometimes even simple actions can cause problems. If you're prone to that kind of thing, sideways scrolling isn't for you.

Smooth operator

Curiously, the big draw for me is not the sideways scrolling. The thing that had me running around the office, begging people to try my mouse was the scrolling action itself. It's smooth. It's smoother than smooth. Smooth scrolling technology; I can't believe it took almost forty years to happen.

The tilting wheel with silky smooth scrolling features on both mice. I'm currently using the Wireless Optical Mouse 2.0 not because it's the best one necessarily, but because it's ambidextrous. Unfortunately being a lefty means that I'm excluded from Microsoft's premium top-of-the-range mice, because they're for right-handers only.

Now I understand that only representing around ten per cent of users my left-handedness is a problem for mouse manufacturers. However, I think there's a fair chance that Microsoft will shift a quite a lot of these mice and keyboards. Surely if any company is big enough to produce lefty mice, Microsoft is. I think it's about time it did.

Anyway – enough moaning and on to the next mouse: the right hander only **Wireless Intellimouse Explorer 2.0** (WIE). This mouse is really a cracker. It has all the features of the other mouse, plus a couple of thumb buttons on the side. These are perfectly placed and are great for copy-&-paste or forward and back commands. You can assign any function to any button, and even have different functions in different applications.

The WIE 2.0 is silver rather than the rather fetching blue of the WOM 2.0, and I don't think it's quite as neat-looking. But you spend your time mousing rather than gazing at your mouse, so looks are less important than function.

Despite the handedness issues, this is a king of mice. Years of designing mice have resulted, in my humble opinion, in the ultimate mousing experience. What will they come up with next?

Wireless Optical Mouse 2.0

Hell for pleather

So what happens when you take the ultimate mouse, pair it with the ultimate keyboard and then wrap them both in (pretend) leather? Well you'll end up with the… deep breath… **Microsoft Wireless Optical Desktop Elite Executive Edition**. I'll just call it the MWODEEE for short.

It's great. It has more buttons than a pearly king, and it includes the tilting scroll wheel on the left side of the keyboard. Of course, it's designed with right-handers in mind – and is, simply, the ultimate keyboard. On the top left, there are five buttons for your favourites. These can be configured to activate any function you like. If you don't fancy the pleather (pretend leather) effect, you can save £20 by choosing the non-Executive edition.

There is one thing that irritates when using a Microsoft keyboard, and that's the horrible windows button. The software can arrange the keys so that they act in the same way as a Mac keyboard, but it's still annoying to look at.

Another minor irritant is the fact that wireless devices such as keyboards and mice need batteries. This doesn't bother me, but some people around the office refuse to work with something that runs out of power occasionally. My wireless mouse at home can last three or four months on a set of batteries, but some people have reported much shorter times. My advice is that next time you get to the checkout at the supermarket, grab a bumper pack of AAs and you won't have to worry about powering your mouse for a year or two.

Macworld's buying advice

The luscious keyboards and mice are very desirable, but they don't come cheap. The MWODEEE is £119 including VAT, which is a high price to pay – but consider how much you use your keyboard and mouse. I reckon I spend close to a thousand hours per year at my computers, so why not spend that time in luxury? I'm not sure I would go for the most expensive model, but the £99 MWODE would suit me fine (if I was right-handed).

As for the mice, I love the Wireless Optical Mouse 2.0, and at £39 I think it's worth every penny. If you were to go for the Explorer version with the extra buttons, the price jumps to £55, so you may as well get the keyboard as well. Whichever one you choose, you can't go far wrong.

David Fanning

Microsoft Wireless Optical Desktop Elite Executive Edition

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Macworld reviews FireWire webcams

Apple's iChat AV software has made videoconferencing as easy as plugging in a cable and turning on your smile. To make chatting even easier, Apple released its own camera, the iSight, to work with iChat AV. But the iSight is the new kid on the block; FireWire Web cams have been around for a couple of years. So we wondered how the iSight would stack up against established products, notably Orange Micro's iBot Standard, ADS Technologies' Pyro 1394 WebCam, and Unibrain's Fire-i.

Apple iSight

We tested the cameras with an 800MHz iBook, a 1GHz Titanium PowerBook G4 and a dual-processor 533MHz Power Mac G4, with DSL, cable modem, T1, and AirPort (802.11b) connections. We also evaluated performance under a variety of conditions. All of these cameras have video rates as high as 30 frames per second, capture video to applications such as QuickTime Broadcaster, and work out-of-the-box with iChat AV. The iSight outperformed the others in nearly every situation, but all the cameras performed well.

Smooth operators

None of the cameras' output comes close to DV-camcorder quality. But thanks to FireWire's much faster data-transfer rate, all of them produce smooth video far superior to the jerky USB and serial video of Web cams from a few years ago. The iSight's overall picture quality was noticeably better than that of the other cameras. It almost always provided a sharp, crisply defined image and did the best job with movement and backlighting. The Pyro slightly edged out the iBot in image quality, but the two were closely matched. The Fire-i had the lowest overall picture quality, but it made up for this in other areas.

The iSight also had the best colour of the bunch, followed closely by the Pyro and then the iBot. All three of these cameras performed tremendously well in our informal colour tests. However, one of our testers, a film and video editor who uses iChat AV to connect to remote sets, noted that the iSight gave him the best sense of what a final shot would look like.

The iSight is the only camera with an autofocus feature, which is both good and bad. We liked the autofocus for its ability to focus on specific items, follow a moving object, and quickly change from an extreme close-up to a regular shot – particularly handy if you want to display a document during a chat. But it sometimes focused on the wrong area, such as the background when another person entered the shot from behind.

The other three cameras rely on manual focus, so users must twist the lens to change the focal length. Of these, the Pyro had the best quality at an infinite setting, while the iBot produced the best close-ups.

The only scenario where the iSight wasn't the top performer was in low light. In fact, the iSight's picture was noticeably dimmer than that of the other cameras. None of the cameras were exceptional in the dark, but the Fire-i was the best performer here.

Sound it out

When you're videoconferencing, it's easy to get caught up in seeing someone else on your computer, so you may forget that without audio, video is pretty useless. For the most part, Web cams have neglected sound. The focus has always been on the picture. Although the built-in microphones on many Macs will work for this task, the iSight's built-in microphone was an unexpected – and very pleasant – surprise.

A Web cam's microphone should be a tremendous decision-making factor for people whose systems lack a built-in mic or mic input (for example, owners of the G4 Cube). Both of those configurations leave you tethered to your desk by a microphone cable – one with a minijack or USB connection – while the iSight gives you the freedom to move about.

The iSight's built-in microphone was dramatically different from any other in terms of sound quality, and it proved to be one of the camera's best features. In situations with ambient background noise, such as an industrial setting or a room with background TV noise, the iSight's mic cut down on those noises more than any other microphone setup. Although the mic works best when you're seated directly in front of it, we found that it outperformed the Mac's built-in unit even when we were moving around.

Orange Micro iBot Standard

ADS Pyro 1394 WebCam

Performance tips

- Ideally, you want the light source in front of you and overhead. Fluorescent and bright light washes out colours and makes skin tones look wan. Natural light is best.
- Ambient noise, particularly if you're using your Mac's or iSight's built-in mic, can kill a conversation. Similarly, lots of movement in the background can pixelate the background or cause your camera to focus on the movement.
- Even at 30 frames per second, Web cams have problems with motion. You shouldn't expect DV-quality performance. Although you don't need to remain perfectly still, moving about quickly – particularly from side to side – will pixelate your image.

FireWire webcams compared

All prices include VAT.

COMPANY	PRODUCT	RATING	PRICE	OS	CONTACT	PROS	CONS
Unibrain	Fire-i	★★★★/7.7	£92	9 X	Channel Dynamics, 0870 607 0540	Great in low-light; compact; additional FireWire port.	Mediocre colour accuracy and picture quality.
Orange Micro	iBot Standard	★★★★/7.7	£88	9 X	Channel Dynamics, 0870 607 0540	Great picture quality.	Bulky; hard to position at eye-level; poor OS X software bundle.
Apple	iSight	★★★★/8.6	£119	X	Apple	Excellent picture quality; built-in mic; fantastic industrial design; best for "face-to-face" chatting.	Performs poorly in low light; no additional software.
ADS Technologies	Pyro 1394 WebCam	★★★★/8.3	£89	9 X	www.datavision.co.uk 01525 406 886	Great picture quality; best software bundle.	Bulky; hard to position at eye-level.

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Extend AirPort's range

extendAIR Direct

Manufacturer: Dr Bott
www.drbottkg.com
Distributor: Channel Dynamics, 0870 607 0540
Pros: Easy to set up; provides an improvement in AirPort Base Station range.
Cons: Doesn't quite achieve the manufacturer's claims unless ideal conditions apply.
Min specs: AirPort Extreme with antenna port or G5.
Price: £139 including VAT.
Star Rating: ★★★★/7.6

Zero configuration
A simple restart of the AirPort Base Station is all that's required to get the extendAIR Direct up and running.

The extendAIR Direct antenna takes advantage of Apple's Extreme Base Station's Antenna port to extend the range of your AirPort network. Dr Bott claims that the £119 extendAIR Direct boosts the usable AirPort-enabled area to approximately 150 meters inside a 70° unidirectional "beam" of coverage. Our testing revealed this range to be reachable only under ideal conditions, but we found that the extendAIR Direct did improve signal strength at closer range.

The extendAIR Direct plugs directly into the antenna port on the high-end AirPort Extreme Base Station, and requires only a restart of the Base Station to be configured. The antenna is mounted on an adjustable base that can be either wall- or desk-mounted up to two metres from the Base Station.

Additionally, Apple's new Power Mac G5 features an antenna ports that works with extendAIR, offering G5 users an alternative should the G5's antenna be insufficient for their AirPort Extreme needs.

Perhaps due to the fickle nature of radio waves, we were only able to achieve Dr Bott's claim of a 150m range in an outdoor environment with no obstructions between the extendAIR Direct and our target computer. Radio waves are scattered or deflected as they pass through solid objects, and the denser or higher in water content the object is, the weaker the signal on the other side. In a more real-world setting indoors, the antenna improved signal strength 25 to 50 per cent depending on distance – and more importantly the type of obstacle – between our test machines and the extendAIR.

Macworld's buying advice

With thoughtful antenna placement, we were able to achieve stronger signals and faster connections to our AirPort network. But don't expect to simply plug in the antenna, set it on a shelf, and get dramatically improved AirPort coverage.

Ben Long

Any port in a storm
The Fire-i's extra FireWire port is great for those who have a machine with only one connection.

Unibrain Fire-i

You can also use the iSight as a standalone microphone for capturing audio; download QuickTime Broadcaster and change a few settings to capture iSight's stream to your hard drive. This works well for most amateur needs.

The iBot Standard comes in another edition, the iBot Pro (not tested here), which comes with a USB microphone headset.

The shape of things

In terms of aesthetics, the iSight is another industrial-design triumph from Apple. It matches PowerBooks and the new G5, and it happened to complement an aluminium trash can and paper-clip holder at our offices.

The iSight comes with three different stands, and it works equally well on a notebook, a flat-panel display, a CRT monitor, and an eMac. No matter which system you mount your iSight on, it will always point directly at eye level. This may seem trivial, but having the camera directly in your line of sight makes for a radically improved videoconferencing environment, as the face-to-face experience more accurately mimics natural conversation. Finally, the iSight's base rotates, for adjusting the camera's angle without unseating it.

Videoconferencing is often a mobile affair for far-flung travellers who use it to link up with distant home offices or loved ones. So having a compact and safe way to carry your Web cam is important. The iSight comes with a snug-fitting, hard-plastic case for travel, and the whole lot fits neatly into the mobile-phone pouch in a laptop case.

Likewise, the minuscule Fire-i travels well – it fit into the same side pouch as a mouse. Conversely, the Pyro and iBot are rather top-heavy and oddly shaped, and neither fits well in laptop cases or comes with a protective carrying case.

The only other camera that comes with a mount designed for laptops is the Fire-i, which has a clip that can attach it to an iBook or PowerBook. The other cameras sit only at desk height, which may give your iChatting friends a good view up your nose. Meanwhile, the Fire-i's clip was clumsy when it wasn't attached to anything, and the Web cam was prone to falling over when the FireWire cable was jostled.

But the Fire-i has another FireWire port built into the camera – a boon for iBook users and anyone who has multiple devices to connect to a machine that has only one FireWire port.

Included software

All of these cameras work with iChat AV. If that's all you want it for, you don't need to install anything else. But if you want to do a Webcast or to videoconference with a Windows user, you need additional tools.

The Pyro has the best software selection of the bunch, with ISPQ, a videoconferencing application that you can use to chat with Windows users; BTV, a great little video-capturing and -editing application; and Oculus, iVisit, ImageCaster, and PhotoShow – software for Web cams, videoconferencing, Webcasting, and slide shows, respectively. The Web-cam software is a nice addition; you don't get this capability with the iSight.

iVisit is great videoconferencing software for users of older systems that don't support iChat AV. The Fire-i has a nice software bundle, with ISPQ and BTV. The iBot Standard also has a good selection of software for older versions of Mac OS, but it offers little for OS X, and it comes with only a trial version of BTV. (The iBot Pro comes with a software selection similar to that of the Pyro.) The iSight is the only camera that doesn't come with additional software.

Macworld's buying advice

In terms of overall quality, none of these cameras can touch the iSight, thanks to its excellent picture and sound capabilities and its industrial design. In terms of value, the Pyro's price, software bundle, and picture quality make it the best budget-conscious alternative. That said, all of these cameras are acceptable.

Matthew Honan

Low-price 19" LCD

S962A LCD Monitor

Manufacturer: CTX
www.ctxeurope.com, 01923 810 800
Pros: Affordable; big screen.
Cons: No digital connection.
Min specs: VGA output.
Price: £492 including VAT.
Star Rating: ★★★★/8.7

If you've been eyeing-up big LCD monitors with envy, but never quite had the funds to ditch your CRT monitor, the new CTX range might be just what you've been waiting for. The latest 19-inch LCD screens look a million dollars but are amazingly cheap at under £500 including VAT.

The low-budget screens don't have the all-singing, all-dancing features you might find on a more-expensive model, but the basics are all there. For example, there's no digital connection available. Digital connections are a good thing, but by no means an essential feature. The differences are more a matter of user friendliness that final image quality.

LCD screens are by their nature digital, while CRT screens are analogue. Because older computers have only an analogue connection, the first LCDs had to decode the analogue signals coming from the Mac and turn them back into digital information. This digital-to-analogue-and-back-to-digital process means that the resulting image needs to be adjusted to get the best results. Digital output fed into LCD screens with digital inputs need no adjustments.

Having an analogue connection means that this monitor needs adjustment, but there's an auto-adjust feature that makes it easy for the user. Once the adjustment is done, the results should be on par with a digital model.

Despite having the auto-adjust feature, the monitor doesn't have a control for it on the front – so you need to go through some menus. If you can cope with that, then this screen is a bargain.

The resolution is 1,280-x-1,024 pixels and the visible screen area is 19 inches across the diagonal. This will compare favourably with a 21-inch CRT, and the results from LCD screens are always sharper than CRTs.

The colour and contrast also need adjusting, which you wouldn't expect from more-expensive models, but once done it shouldn't need much more adjustment in the future. So while the initial setup is fiddly, you only have to do it once.

The screen belies its bargain basement price. It's available in three colours – black, beige and silver – and the prices correspond to the colours. The beige model is the cheapest (and ugliest) at £469, black is £479, and silver £492. It does seem a bit much to charge extra for the black and silver models, but presumably, CTX is working on low margins and every penny counts.

Macworld's buying advice

If you can't stretch to a Cinema Display, the CTX 19-inch range is great. Setup isn't perfect, it's no big deal in the long run.
David Fanning

Money talks
The CTX S962A will be perfect for those who can't justify splashing out on an Apple Cinema Display.

Innovative scanner

Scanjet 4670

Manufacturer: HP
www.hp.com/uk, 0870 547 4747
Pros: Looks great; scans slides; easy storage.
Cons: You pay extra for the cool looks.
Min specs: USB; Mac OS 9.1 or OS X 10.1.5.
Price: £179 including VAT.
Star Rating: ★★★★/8.6

Scanners are a mature technology. They're boring, and they clutter up your desk. They sit on desks and get things piled on top of them until they're forgotten. That's how most people view them. The new Scanjet 4670 will change all that. It's great to look at, and easy to store. In fact, most observers probably won't even know it's a scanner.

The new design turns conventional scanning on its head by ditching the scanning bed altogether There is a stand included, but the scanner itself is just like a clear glass picture frame.

The scanning head is sandwiched between the glass panes and it can be held over things that might have been awkward to get to the scanner bed. Instead, you take the scanner to the object.

The stand it sits in has two purposes: to store the scanner and to hold papers that are going to be scanned. While you aren't scanning, artwork can put in the stand and displayed as if the scanner were a picture frame.

Before you start thinking that the scanner is just a novelty item – all gimmicks and no power – it's a very capable 2,400dpi scanner. It's just a fortunate offshoot of the design that you can scan your cat with it.

The software supplied ties in with the buttons on the side so you can scan to various applications directly. It's all Mac OS X-ready, which is commendable, but I still find it a bit clunky.

In an effort to make things simple for beginners, HP has actually made it more difficult for the rest of us, with few obvious controls for more-advanced features.

HP supplies a transparency adaptor, so you can scan 35mm slides. OCR software is also included for getting text files from printed documents. It has everything a consumer or small-business audience could want.

Macworld's buying advice

You could easily get a scanner with these specifications but without the cool styling cheaper. So it comes down to how much you value the features of the frame-style model.

It certainly makes it easy to scan large objects in parts, so there's some justification to pay the extra if you have particular needs. On the other hand, if you've bought a Mac already, then you'll be used to paying a little extra for a thing of beauty.
David Fanning

Scan-tastic
A new concept in scanners: the Scanjet 4670 looks great, doesn't cost the earth, and you can scan pretty much anything you like with it.

Forget that 2-megapixel digital cameras ever existed. The new battleground of consumer photography is in the 3- and 4-megapixel space, and it's here that you should look if you want to find the most tempting balance of features, performance and price.

We decided to look at three representatives from the 'value-for-money' end of this blossoming market; the 3.2-megapixel Olympus Mju 300, which was launched earlier in 2003; Ricoh's 3.2-megapixel Caplio G4; and Konica's 4-megapixel KD-420Z, both launched late this summer.

They cost between £200 and £250 (including VAT), which sounds cheap by digital-camera standards. But with cheaper 4-megapixel models bearing down on them, don't be surprised if the 3-megapixel cameras reviewed here cost nearer to £150 by next summer.

The **Ricoh Caplio G4**'s main claim to fame is supposed to be its fast 0.14 shutter response – but that's only one element of a camera's performance. It turns on at about the same speed as many cameras – around three seconds (Ricoh claims 1.8 seconds) – and takes a geriatric six seconds to save shots to memory. Flash cycle time about four seconds – about the same as the Olympus and Konica.

The camera's real strength is its lens. It features an astounding macro feature that lets you get sharp pictures down to about 1cm, something no other compact comes close to rivalling. The basic G4 comes with a 3x zoom (35-114mm) and there's also a groundbreaking 28-85mm wide-angle option – the G4 'Wide' – ideal for landscape photography enthusiasts or those seeking enhanced depth of field.

The camera comes with 8MB of memory, leaving you with an empty SD-card slot to fill if you want to take more than five images at highest resolution. Buying a set of rechargeable AA batteries is essential as you only get puny alkalines in the box.

Sensibly, Ricoh puts exposure compensation on a dedicated button rather than buried away in a menu – a useful feature, as the camera's metering is sometimes wayward in bright or high-contrast conditions. Other general niggles include the rather unflattering plastic bodywork and a distractingly noisy zoom.

Olympus Mju 300

The G4 is an eccentric mixture of the inspiring and the flawed. If you want point-and-shoot, it'll do a good job. If you want control over your shots, it'll let you do a fair amount of that, too. Nonetheless, we suspect the G4 is really a stop-gap before greater things.

The **Olympus Mju 300** is slicker than the Ricoh without excelling in any particular area. Everything about it is geared towards keeping the casual snapper happy. It is small and light enough to pocket or hang around the neck. Having a sealed aluminium 'all-weather' (water- and grit-proof) body suggests durability. Most of all, it takes decent natural light and flash pictures without being complicated to use or keeping you waiting between shots.

Technology counts

The caveat is that the Mju won't exactly unleash a creative tidal wave. There's an enduring myth that timeless pictures can be taken on ten-bob Box Brownies, but for the vast majority of mortals, technology still counts. You need control for a start, and the Mju doesn't give you much of that.

You can choose from a number of basic exposure settings, and can vary metering to spot or evaluative. That's about it. No ISO film setting (it automatically selects from 80 to 320) no manual exposure mode of any description, and a lens that stops from f3.1 to f5.2. Setting white balance means choosing one of four presets.

You do get a 3x optical zoom (38-105mm equivalent), a bright LCD display and a rechargeable, long-lasting Lithium-Ion battery (and charger). Cycle time between shots at top resolution is brisk, and the camera is responsive enough to at least remind you of an analogue camera.

Konica's **Revio KD-420Z** is the smallest and neatest of the cameras looked at here, a compact, well-made little box clad in tough-looking steel. It turns on like a mobile phone – with a celebratory 'bong' – firing itself up to readiness at unusual speed. It is the most responsive of the three, zooming in and out rapidly and accurately, leaving the user free to compose and shoot. Focusing is accurate thanks to the inclusion of an assist light.

Curiously, the Konica takes two types of memory card – SD and Sony's Memory Stick. This is promoted as a feature, though it's hard to see the advantage of supporting two memory formats at the same time. You get a 16MB SD card to start you off. There seems no point in moaning about the inadequacy of this, as every digital camera on the market suffers from the same issue.

With a 4-megapixel CCD, the Konica scores over the other two in image quality, but not significantly so – picture quality on all three is decent. A helpful convenience is the ability to zoom in extremely close when viewing an image in playback mode – a good way of quickly checking for problems with focusing and camera shake.

Despite looking like a point-and-shoot model, the Konica offers a good degree of control, including a manual exposure mode. ISO sensitivity runs from 50 to 500. As with the Olympus, a Lithium-Ion battery and charger are included in the price.

Macworld's buying advice

Which of the three would we buy? All take decent pictures, but the Konica stands out mainly because it comes closest to matching the handling experience of a conventional 35mm film compact. That is the next important milestone for digital photography, and the Revio is evidence that it's finally coming close to being reached.

John E Dunn

Ricoh Caplio G4

Konica Revio KD-420Z

3-4mp digital cameras

Ricoh Caplio G4/Wide

Manufacturer: Ricoh www.ricoh.co.uk, 01782 753 300
Pros: Wide-angle lens option; amazing macro performance; fast shutter response.
Cons: Disappointing file-write speeds; sluggish/noisy zoom; no rechargeable batteries supplied.
Min specs: USB.
Price: £199 including VAT.
Star rating: ★★★/7.0

Olympus Mju 300 Digital

Manufacturer: Olympus www.olympus.co.uk, 020 7253 2772
Pros: Durable; all-weather 'sealed' body; responsive; reliable picture quality.
Cons: Lack of manual controls; zooming is jerky.
Min specs: USB.
Price: £299 including VAT.
Star rating: ★★★/7.5

Konica Revio KD-420Z

Manufacturer: Konica Minolta konicaphoto.co.uk, 020 8751 6121
Pros: Blindingly fast; takes SD and Memory Stick cards; rugged.
Cons: Menus can be a fiddle.
Min specs: USB.
Price: £249 including VAT.
Star rating: ★★★★/8.2

Digital-audio recording

Cubase SX 2.0

Publisher: Steinberg
www.steinberg.de
Distributor: Arbiter,
020 8970 1909
Pros: New features such as Stacked Cycle Recording to facilitate multiple takes and the Time Warp tool to match MIDI to audio.
Cons: Needs a fast CPU for best results.
Min Specs: 867MHz G4; 384MB RAM, Mac OS X 10.2.5.
Price: £570 including VAT.
Star Rating: ★★★★/8.8

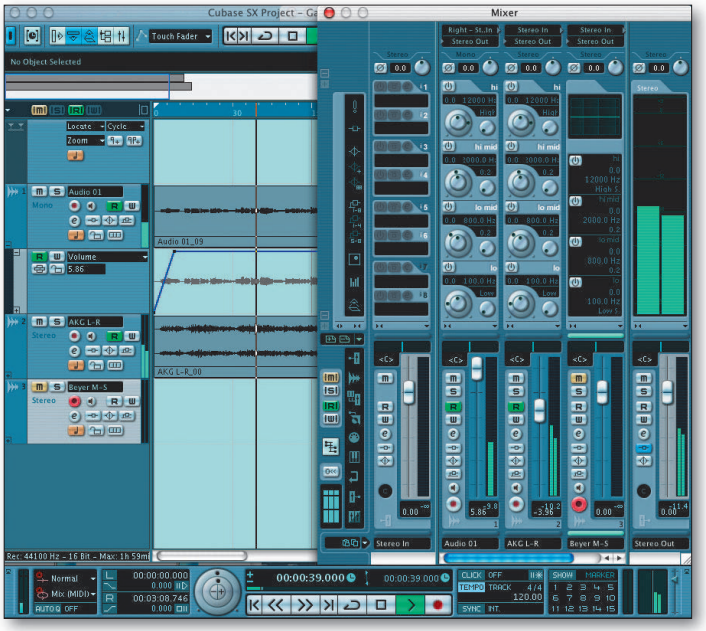
Assemble the perfect take
Stacked Cycle Record Mode works with both MIDI and audio tracks. Each cycle lap is turned into an audio event. The track is divided into lanes, and events are stacked, each on a different lane. This makes it easy to assemble a perfect take.

Hot on the heels of Nuendo 2.0, Steinberg has released Cubase SX 2.0. The interface has been revamped to fall more closely in line with Nuendo 2.0, and most of Nuendo's technical features have been incorporated.

It now uses the same audio engine as Nuendo 2, with its all-important plug-in delay compensation and support for up to six audio channels for surround sound. OMFI file compatibility has been added – so you can exchange projects between Cubase SX and Pro Tools, for example. And to compete with Logic, a Freeze function has been added for virtual instruments.

The user-interface can be customized. You can change the contents and look of several sections and panels, including the Transport panel, toolbars in the Project window and the editors, and the track controls in the Track list. Unwanted controls and settings can be hidden, and users can change the order of items on the panels.

The new Time Warp tool can be used to create a tempo map that fits a recording – or to match positions in a video with positions in the music. Just drag a bar-line to line it up with a downbeat. The Tempo track now has a Tempo Record slider. Move it during playback to write Tempo events into the Tempo track.



Macworld's buying advice

What does Nuendo have that Cubase SX doesn't? In a nutshell, all the extra features for professional post-production. These include Sony nine-pin machine control to run pro VCRs in sync, more-advanced surround features, child busses in the VST Connections window, and more powerful crossfade capabilities. If music production is your game, you won't miss these features – so Cubase SX will serve you well.
Mike Collins

High-end sampler

MachFive Sampler

Publisher: Mark of the Unicorn www.motu.com
Distributor: Music Track,
01767 313 447
Pros: Universal sampler that works with all host platforms.
Cons: Buggy behaviour in Cubase SX 2.0; needs a fast CPU for best results.
Min Specs: 800MHz G4; Mac OS 9 or OS X 10.2; suitable host application such as Digital Performer, Pro Tools, Logic, Cubase or Nuendo.
Price: £295 including VAT.
Star Rating: ★★★★/8.2

Action Five
This MachFive window shows the File Browser (top left), the Parts section below this, the Display area (top centre), the Keygroup parameters (lower centre), the Master section (top right), the Part parameters below this, the LFO section below this and the Effects section at the bottom.

MachFive claims to be the first universal software sampler, as it supports every major audio platform on both Mac and Windows (MAS, VST, Audio Units, HTDM, RTAS and DXi).

The idea is that you can effortlessly move from one platform to another – or collaborate with colleagues who use different audio software.

MachFive is 16-part multitimbral, so one insertion may be needed – with up to 16 MIDI tracks in the sequencer playing back the different parts. You can set a different output for each part into the mixer when using Digital Performer as the host, so effects can be added and levels balanced between parts using different mixer channels. Cubase, Nuendo and Logic for Mac OS 9 provide eight outputs. Logic for OS X and Pro Tools provide only two – so the sounds from all the parts are mixed together into stereo. You can add effects and balance sounds within the plug-in, but if separate outputs are needed, it means using separate instances of the plug-in.

MachFive is much more than a sampler; it's more like a top-flight synthesizer with sophisticated filters, envelope controls, LFOs and modulation options. Editing and performance parameters are presented in a single window, and samples can be dragged directly from the desktop or host tool to MachFive's keyboard to create key groups. MachFive's waveform editor can truncate, normalize, fade and otherwise manipulate samples in the central display area.

The effects section lets users add effects to each multitimbral part, as well as up to four global aux effects and four master effects– choosing from the dozens available.

MachFive comes in six-, four- and two-channel versions, and accepts samples in all formats from mono to 5.1. There's plenty of polyphony – up to 128 notes with the fastest CPUs – and you can set the polyphony for each part. MachFive supports 24-bit audio at up to 192KHz, and high-resolution samples can be used at lower sample rates– so go ahead and sample at 96 or 192KHz. A key feature is support for GigaSampler and all other major formats.

Macworld's buying advice

I encountered bugs in Cubase SX 2.0, but everything was fine in Pro Tools. Digital Performer let me use more tracks without breakup. I buy the idea of using MachFive on different hosts, as I regularly work many, and it's a pain swapping between the EXS24, Kontakt, Halion and SampleTank.
Mike Collins

Macworld.co.uk Subscribers can search Macworld's Reviews database online (www.macworld.co.uk), updated throughout the month

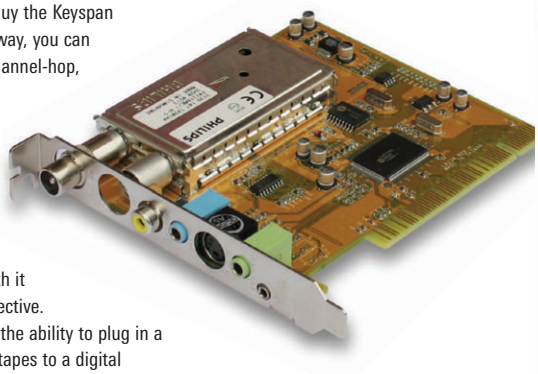
Wandering the aisles Dixons lately, you may have noticed that the flat-panel TV section is almost as big as the old CRT section. If, like me, you don't have the cash for a flat-panel TV but already use an LCD with a Mac, Miglia has a prefect solution. Using the Alchemy TV card, it's possible to watch TV on your Mac.

The ability to have a TV tuner on my Mac isn't one of those things that I've been champing at the bit for – but watching TV is only part of the allure of the Alchemy TV card. There are lots of practical uses for it.

The way it works is straightforward. You install the card in an empty PCI slot, so you'll need a Power Mac. It has six connectors: RF-in, radio, composite video, audio-in, S-VHS-in and audio-out. The first two are where you plug in your aerials, which you'll need to do to get a picture or listen to the radio. The rest (with the exception of the audio-out) are for connecting analogue video sources such as VCRs, camcorders or games consoles.

The software is basic – a TV tuner that can record to hard disk. But it can be enhanced if you buy the Keyspan remote control. That way, you can sit on the sofa and channel-hop, just like on a real TV.

That covers the TV thing – you can watch it in a window or full screen. But there are more practical things you can do with it from a creative perspective.



A major bonus is the ability to plug in a VCR and record your tapes to a digital format. That means you can get your old fading wedding video on to DVD, which could be worth the price in itself. You can also record TV, which might be good if there's something you want to keep in a less fragile format than VHS. So if you're appearing on Stars in Their Eyes, it might be a good investment (if you want to remember it, that is). Recording radio to MP3 is also a possibility, though I'm struggling to find a reason to do that.

There's a piece of third-party software available that lets you use an analogue video camera and the AlchemyTV card with iChat. Perhaps not a reason to buy the card alone, but with the other benefits, it all starts to look like a good buy.

Macworld's buying advice

The AlchemyTV card is a versatile piece of kit; most people will find at least a couple of uses for it – and it's an appealing add-on for a desktop Mac. I can see these flying off the shelves when Euro 2004 rolls around.

David Fanning

TV on the Mac

Alchemy TV

Manufacturer: Miglia
www.miglia.com
Distributor: AM Micro, 01392 426 473
Pros: Handy for all kinds of things – not least watching Euro 2004 at work.
Cons: No digital channels unless you have a separate box.
Min specs: PCI slot; OS X.
Price: £82 including VAT.
Star Rating: ★★★★/8.5

Data-backup application

Retrospect Backup 5.1

Publisher: Dantz Development
www.dantz.com
Distributor: Computers Unlimited, 020 8358 5857
Pros: Good value; high-quality software; Mac OS X boot-&-restore CD; extended support for CD/DVD drives.
Cons: Non-standard folder navigation and selection; confusing multi-window interface.
Min specs: PowerPC G3; Mac OS 9 or Mac OS X 10.1.2.
Price: Desktop, £94, upgrade £43; Workgroup, £365, upgrade £74; Server £586, upgrade £116.33. Prices include VAT.
Star rating: ★★★★/8.4

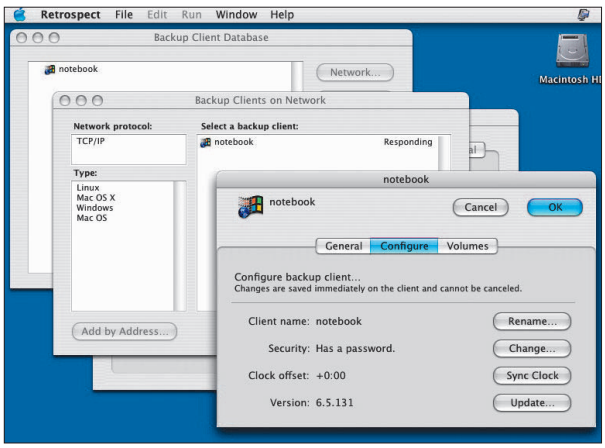
Reading about data backup might be as interesting as watching paint dry, but actually doing backup is as much fun as *listening* to that paint as it dries. People also put off backup tasks because they take time and need the occasional poking with a software stick. The Dantz answer is to make preparing backups as quick and painless as possible, and to streamline the actual backup process so it runs without intervention – even unattended.

Retrospect Backup 5.1 is a minor upgrade to the Mac platform's best-selling backup utility software. It lets users indicate multiple sources and multiple locations per source per backup, and arrange as many different concurrent backup sets as you wish. Backups can be complete – even a direct volume-to-volume copy – or progressive with date synching. Best of all, the utility supports network and even Internet-based client computers, so you can conduct Retrospect routines on a Mac that backup data from a variety of connected devices, including Windows and Red Hat Linux machines.

The product is sold in three packages: Desktop (for backing up your Mac and two other connected client computers), Workgroup (20 clients) and Server (100 clients). However, the core Retrospect Backup program itself is the same, letting you add extra clients as they're needed.

New in version 5.1 is extended support for more CD and recordable-DVD drives. Also new is the installation CD which doubles as a Mac OS X boot and restore disc, saving you the not inconsiderable trouble of writing your own. Unfortunately for Mac OS 9 users, there's no Classic boot mode on the CD, but virtually all G3 Macs should be able to start up in Mac OS X from that CD in order to run the restore sequence. Our tests confirm that Retrospect restores are reliable and thankfully uncomplicated to conduct. The program does what it you expect of it, and does it extremely well.

The only problem is that the old Retrospect interface needs a makeover if it wants to look friendly on-screen to beginners and backup-phobes. Setting up new backup routines or configuring existing ones tends to spill out into lots of small windows, and it's easy to forget where you are or how you got there. It isn't possible to browse a Mac and network clients using the standard Mac OS X File Open dialogs – users are forced to dance back and forth between multiple windows by clicking on mysterious 'Subvolume' and 'Define' buttons.



Client configure
Install the Retrospect client software on any TCP/IP-connected computer, and your copy of Retrospect Backup will see it immediately

Macworld's buying advice

Retrospect Backup deserves its high reputation for effectiveness and reliability. While this upgrade is only a minor improvement on version 5.0, it's valuable just the same and a no-brainer purchase for anyone serious about not losing their data. Beginners will need to struggle past Retrospect's strange interface, but once you're there, Retrospect is easy enough to use.

Alistair Dabbs

User-friendly 3D tool

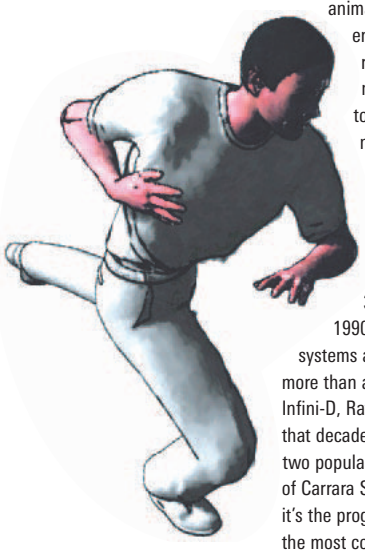
Carrara Studio 3.0

Publisher: Eovia www.eovia.com, 01483 797 498
Pros: Excellent documentation and Web-based support; physics engine; feature-laden; easy to use.
Cons: Processor-intensive and RAM-hungry; dated particle systems; renders the Dock unusable.
Min specs: 266MHz G3; Mac OS 9.2.2 or OS X 10.1; 128MB RAM; Internet connection for Web-based support.
Price: £372 including VAT.
Star rating: ★★★★/8.8

Over recent years the 3D landscape has changed considerably on the Mac platform. The 2001 release of 3D heavyweight Maya, followed by a radical price reduction of that software a year later finally gave Mac users the opportunity to get their hands on some serious 3D firepower. Maya's long-awaited debut also had a knock-on effect for other 3D program developers, who, as well as lowering their prices, were forced to bring their own software up to speed.

Things have never been healthier in the 3D world for Mac-based designers. There's now a wealth of 3D programs available for the Mac, offering an impressive range of high-end features at prices that won't break the bank – leaving Carrara Studio 3.0 in a strong position.

Now into its third incarnation, Carrara Studio is a powerful 3D program that boasts advanced modelling capabilities, intuitive animation with built-in physics engine and a selection of rendering engines that put many more-expensive packages to shame. Those with long memories will recognize some of Carrara Studio's features. Its room-based metaphor, for example, is directly ported from Ray Dream Designer, a mainstay of the Macintosh 3D platform throughout the 1990s. The program's particle systems and overall ease of use bear more than a passing resemblance to Infini-D, Ray Dream's main rival during that decade. The best features of these two popular old-timers form the backbone of Carrara Studio 3.0. But, inevitably, it's the program's interface that provokes the most comment.



Special branch
Carrara's new TreeMaker creates realistic trees and plants that compare favourably with dedicated tree-making programs.

Carrara Studio's interface is the Marmite of the 3D world. If you're Poser or Bryce 3D user, you'll feel at home with Carrara. But if you're new to 3D modelling you may find the program's unique organic look – inherited from Carrara's previous developers, the Kai Krause-inspired Metacreations – to be an unnecessary distraction. This is a pity because Carrara Studio is aimed squarely at the 3D novice who wishes to learn the trade without having to clamber up too many steep learning curves.

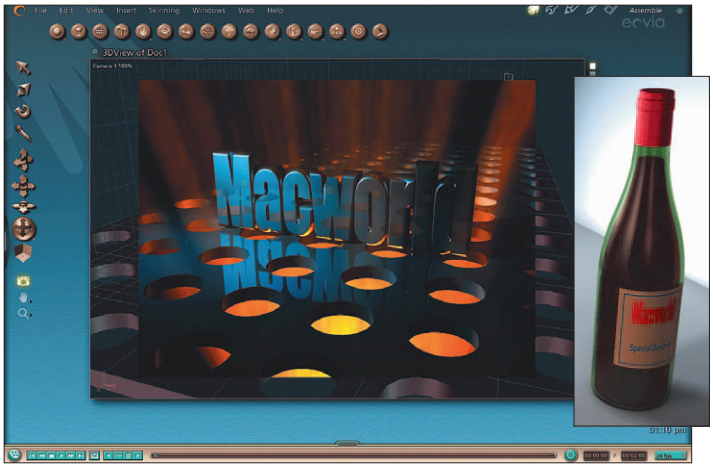
There are plenty of alternatives to Carrara Studio out there. But what sets this program apart from the rest is its ability to have you up and running in a short time. Even without any prior 3D skills, the user is able to quickly churn out 3D logos, landscapes and packaging designs like a pro. This is made possible by Carrara's extensive range of screen wizards, which automatically set up fully lit 3D scenes that can be easily customized. Screen wizards are just one of some 400 new features that the program's developer, Eovia, claims to have introduced to Carrara Studio 3.0.

Rooms for improvement

Upon launch, Carrara Studio is split into five 'rooms', each dealing with a separate aspect of the 3D design process. The Model room lets users manipulate primitives, splines, metaballs and vertex objects; the Texture room lets you create multiple layered textures for models; the Storyboard room is for previewing and tweaking individual keyframes to build up complex animations in a manner once again very reminiscent of Infini-D; while the Assemble room lets you arrange, position and light models.

There's a lot of raw power in Carrara Studio. And if you can get used to the interface, you can achieve results that rival more expensive packages such as Cinema 4D and LightWave.

Carrara's rendering capabilities are not to be scoffed at, either. In addition to traditional Phong and Gourad draft output modes, the program's raytracing engine has been upgraded to include true soft shadows, HRDI, alpha-channel rendering and improved support for global illumination. These are high-end features at a low-end price that result in images almost indistinguishable from photographs – something you would have had to pay an arm and a leg for not so long ago.



Logo-making
Simply substitute a scene wizard logo with one of your own, or map your logo onto a bottle, perhaps (inset).

Eovia has obviously been busy since the last upgrade to Carrara less than a year ago. Among other notable improvements and additions to Carrara are a Tessellation tool, a Crease tool and a Dynamic Extrusion tool in the modelling toolset; a new UV editor for complex texture mapping; a tree editor which, although a little RAM hungry, creates realistic-looking plants; and several new non-realistic rendering modes that can output images as paintings or cartoons.

As is traditional with new upgrades to Carrara, the program comes with a few bugs. In complex models, there's significant system slowdown, as well as redraw problems in some of the menus in the Model room. But this is just nit-picking really, because Eovia is to be congratulated for producing a piece of 3D software that's edging ever closer to the big boys. No bones about it (although the program does, of course, include bones), this significant upgrade is well worth the £372 price tag.

Macworld's buying advice

Carrara Studio 3.0 is an excellent way to enter the 3D design world. It has hidden depths, ideal for the novice who needs to be led by the hand through techniques that are just plain scary in other 3D packages. Moreover, Carrara Studio is fun to use – a quality often overlooked by rival developers. I like this program a lot. And I'm pleased that Eovia has chosen to keep alive the quirky ethos of Kai Krause – the man who back in the early 1990s gave us the ground-breaking Kai's Power Tools.

Ian Probert

LaserSoft Imaging has won great acclaim for its excellent scanning software, SilverFast Ai, which is pretty much the industry standard when it comes to optimizing scan quality.

With SilverFast DC Pro, the company has turned its attention to digital cameras, offering a means for photographers to edit RAW-format files.

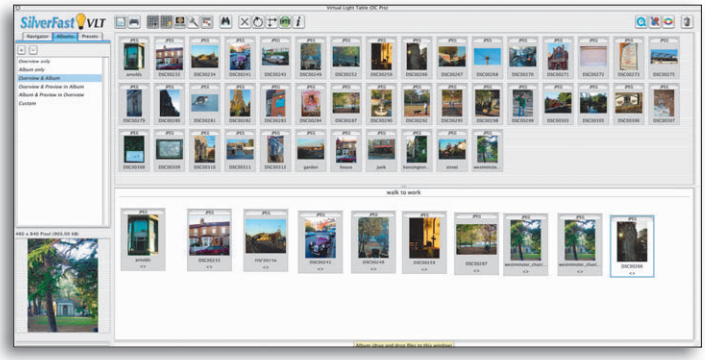
RAW files are essentially digital negatives, because they are what the digital camera's CCD (Charge-Coupled Device) sees without any processing. When shooting in anything other than RAW (JPG or TIFF, for example) it's the camera that determines white balance, among other settings.

One thing about DC Pro that I disliked intensely is that it looks and feels hurried. Essentially LaserSoft Imaging has taken its excellent SilverFast Ai 6 and bolted DC Pro onto it. Not only is DC Pro cluttered with SilverFast Ai 6 scanning functionality that has simply been disabled, but the manual isn't a DC Pro guide at all; it's an in-depth walk-through of SilverFast: finding DC Pro content involves an insane degree of index-trawling, and for a good time I thought that the company had put the wrong manual in the box.

One of DC Pro's key features is Virtual Light Table (VLT). This provides the user with the means of viewing, organizing and managing digital assets in albums. VLT also provides image-correction tools, such as red-eye removal, colour correction, and exposure adjustment. It is, essentially, a reworking of Photoshop's File Browser.

While VLT is undeniably useful, it's inferior in some cases to File Browser. For example, files are searchable by name only, whereas in File Browser files can be searched by resolution, creation date, file type, copyright and even colour profile.

Although DC Pro includes an IT8 colour target, this seems to be another Ai 6 legacy. Profiling a scanner with a colour target makes real sense, but most professional photographers would agree that doing so with digital cameras is a real headache, as you can't meaningfully create a single profile for a camera. At best, you could use the supplied targets to build a series of profiles for typical shooting conditions. However, given DC Pro's feeble white-balance controls, I'm not sure what the point of this would be.



Virtual reality
A key feature of DC Pro is Virtual Light Box, a digital-assets management tool similar to Photoshop's File Browser.

Macworld's buying advice

I'm genuinely baffled by DC Pro; the product leaves me with a strong feeling that the folk at LaserSoft somehow got wind of Photoshop CS' bundled Camera Raw feature and improved File Browser, and decided to offer something to rival these elements. However, at €299, SilverFast DC Pro is far from frivolously priced, and Photoshop afficianados have little reason to buy it: those using Photoshop 7 can buy the excellent £78 Camera Raw plug-in, or spend £125 on upgrading to Photoshop CS, which offers Camera Raw built-in, as well as piles of other photography features (not least of which is photo-stitching.)

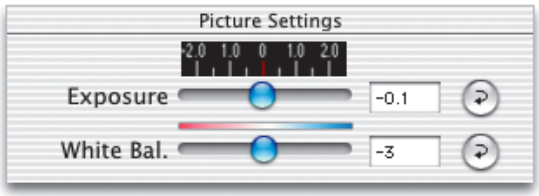
This seems to leave a target audience comprising non-users of Photoshop – yet I find it hard to believe that anyone who is serious about digital photography would elect to ignore Photoshop

Sean Ashcroft

RAW image-file editing

SilverFast DC Pro

Publisher: LaserSoft Imaging
www.silverfast.com
Pros: Can edit RAW files.
Cons: Poor white-balance controls; expensive; product looks and feels like an afterthought.
Min specs: Mac OS 10.1; 256MB RAM.
Price: €299.
Star Rating: ★★★/5.5



RAW deal
The most important change one can make to a RAW file is to set the white balance, yet DC-Pro's control is crude .White-balance control in Photoshop CS now offers Camera Raw as a built-in feature. Camera Raw offers intelligent white-balance control, including Temperature and Tint sliders, as well as a drop-down menu containing common lighting conditions.

Whisper it, but Jonathan Ive isn't quite the irreproachable design guru of myth. We had an inkling of it with his awful hockey-puck mouse – and it has now been confirmed by the Ive-inspired Cinema Display LCD monitors.

Yes, they may look beautiful. But Cinema Displays are triumphs of design over content; of aesthetics over practicality.

Why so? Because unlike virtually every other LCD screen out there, Ive's one-height displays aren't adjustable, meaning that if this one height doesn't suit your working conditions – and you end up in a neck brace, or suffering from RSI – then tough.

I found this out the hard way. Moments after unpacking my workplace 20-inch Cinema Display I found myself looking for a way to raise it, because it was far too low relative to my optimum chair height, and meant my viewing position was like that mirror-pose people do when checking how big their double chin has grown.

I was aghast, because I could tell that this £1,049 monitor would end up crippling me. My first solution was crude: lifting the screen by sitting it on three shrink-wrapped bundles of old Macworlds.

But then one of my colleagues discovered a product called CinemaLift – a hydraulic metal arm that suspends the Cinema Display above the desk. It's adjustable through 360 degrees, and offers a screen-tilt of 200 degrees – and the arm can be either clamped on a desk or wall-mounted. Both types of bracket ship in the box.

Macworld's buying advice

The CinemaLift looks undeniably cool and it has undoubtedly saved me from the clutches of a chiropractor. I have nothing but praise, both for it and its makers.

However, had it been me instead of my work that had bought a 20-inch Cinema Display, I'd've been incandescent with rage. Why should anyone who's forked-out over a grand on a monitor be expected to find a further £175 because it's ill-designed?

Cinema Display owners who are suffering back spasms should buy a CinemaLift, or at least find a pile of old magazines. However, for such unfortunates it's too late for my best advice: don't buy a Cinema Display.

Sean Ashcroft

Neck-crick prevention

CinemaLift

Publisher: LCDArms
www.lcdarms.com
Pros: Makes the Cinema Display ergonomic.
Cons: Should be unnecessary.
Min specs: Cinema Display.
Price: £175 (excluding VAT).
Star Rating: ★★★★/8.0

Lifesaving OCR tool

Readiris Pro 9

Publisher: Iris www.irislink.com
Distributor: Widget, 0800 138 1639
Pros: Takes the work out of retyping documents.
Cons: A little interaction is needed to get the best results.
Min specs: PowerPC; Mac OS X 10.1; OS 9.
Price: £82. Special Macworld reader upgrade offer from version 7.0, £69. Prices include VAT.
Star Rating: ★★★★/8.6

Iris and Macworld offer all readers a free version of Readiris Pro 7. You'll find it on the second CD, along with a demo of Readiris Pro 9.

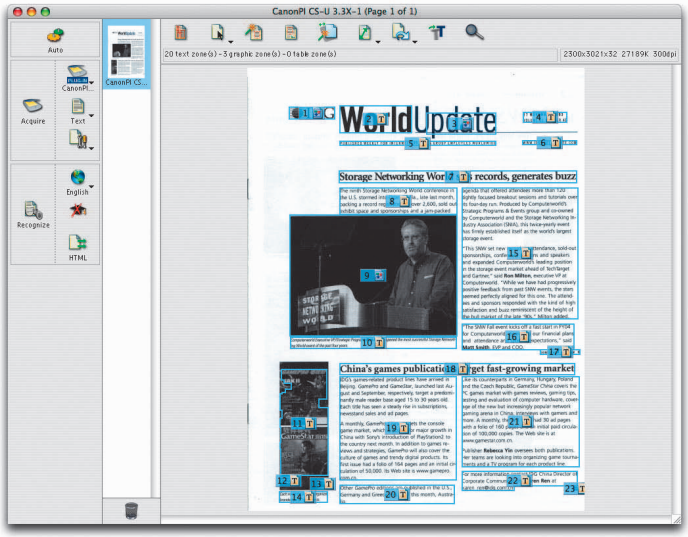
Sometimes documents arrive in the wrong format. If it's a Word document and you don't have Word, then it isn't such a big deal, but if it's a fax or printout, then you're in real trouble. It can be frustrating in our email-based world to have to re-type documents to get them into a useable format. The answer to that particular problem is OCR – and in particular, Readiris Pro 9.

OCR has been around for a long time. In fact, years ago whole machines were built just to scan and process typed (on a typewriter) documents. In those days, when the average PC or Mac had less than a megabyte of RAM, desktop OCR was barely thought of. Now you can pick up a scanner for under £50, and be scanning documents into text with ease.

When you have Readiris installed, you may need to reinstall your scanner drivers so that the plug-ins are available to the application. Any TWAIN or Photoshop plug-in can hook into Readiris, so any scanner should be compatible. Once the software }is able to see the scanner, the user tells it how to deal with the scanned documents. Text files can be produced as .txt, .rtf, .html or .pdf files. The application will then trigger your choice of reader to open the document.

In practice, we tested Readiris Pro with a number of increasingly difficult documents, starting with simple text pages in the same font, to mixed media pages with different fonts, images and columns.

The initial tests were passed with flying colours. Accuracy was excellent, only faltering when confronted with scribbles or smudges. Just as impressive was the speed – pages were processed in seconds – a far cry from when I last looked at OCR software.



The process
Readiris automatically orientates the image correctly, recognizes columns and graphics, and converts them to text.

The result
Presto! Out pops a formatted Word document (or HTML, PDF or .txt document).

CanonPI CS-U 3.3_3152601377.rtf
IDG WorldUpdate
Storage Networking World sets records, generates buzz
China's games publications target fast-growing market

Simpler pages were processed in automatic mode, leaving all the judgements and adjustments to the software. When we moved to more-challenging pages, Readiris was able for the most part to recreate the pages in .rtf format. The recreated pages weren't identical to the originals, but this is more of a limitation of the format than the OCR software. It was slightly better when output was set to HTML or PDF, but these formats are less suitable for editing.

Readiris uses four fonts to recreate pages. It also emboldens and italicizes to match the original page. Four fonts may not seem like many, but it's enough to have two serif and two sans-serif fonts. This helps recreate pages without adding dozens of fonts, and gets close enough. Occasionally you may find a sans serif font in a serif paragraph, or point sizes changing in a sentence, so some tweaking may be required when recreating pages. But compared to the challenge of laying out a whole page and typing it in, Readiris Pro is a lifesaver.

Readiris does other clever things that you may not notice at all. For example, older OCR packages were easily baffled by slightly slanting text. This is automatically taken care of by Readiris when the de-skewing feature is turned on. Similarly there is a de-speckle option for dealing with grainy originals. Possibly the best timesaver is the automatic orientation detection. Usually when you put a sheet on a scanner, it isn't obvious which way up it should be. Upside-down pages usually come out as gobbledegook with OCR packages, but orientation detection takes care of that.

If the results you get aren't quite what you're after, it's simple to go back and tweak things to get better results. One thing we found was a tendency to read some small images or icons as letters. This results in garbled text in the document, so it's better to go back to Readiris and tell it that the element is a image rather than text. It means the process isn't entirely automatic, but it gets results that are much more useable, so saving time in the long run.

Readiris Pro boasts excellent language support, but unfortunately support for Unicode in OS X differs from OS 9. While the operating system supports Unicode, it relies on individual applications to implement it. In OS 9 Unicode was handled by the operating system, so languages worked well. Language support is now much more patchy, and for the purposes of OCR only Latin alphabet languages work properly in OS X. The boffins at Iris tell me that although Readiris can recognize 104 languages, there are system issues that complicate getting the languages out again in OS X. If you want multilingual support, you may have to use Readiris in OS 9.

Macworld's buying advice

It you habitually re-type documents then OCR is a must – and the latest Readiris Pro is about as good as you'll find. I can't say that it's perfect on all documents; nothing is. But on simple documents it rarely falters. It's only on more-complex documents that results are less acceptable. A little care and attention will keep even the busiest documents close to perfect.

It's a shame that the language support isn't as all encompassing as on the Windows version, but it isn't down to any failure on the part of Iris. As long as foreign languages use a Latin alphabet, there should be no problem.

David Fanning

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Font collections

Professional Font Library 1000

Publisher: The Type Marketing Company
www.type-marketing.net,
01242 252 095
Pros: Huge selection of familiar fonts.
Cons: Some fonts are a bit too familiar.
Price: £139 excluding VAT.
Star Rating: ★★★★/8.4

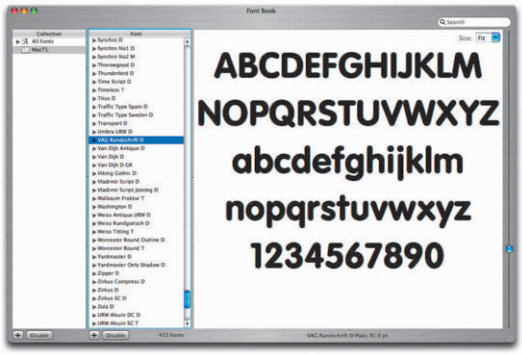
Handwriting Fonts

Publisher: The Type Marketing Company
www.type-marketing.net,
01242 252 095
Pros: A giant collection of handwriting examples.
Cons: Some examples are worse than my own (awful) handwriting.
Price: £149 excluding VAT.
Star Rating: ★★★★/8.3

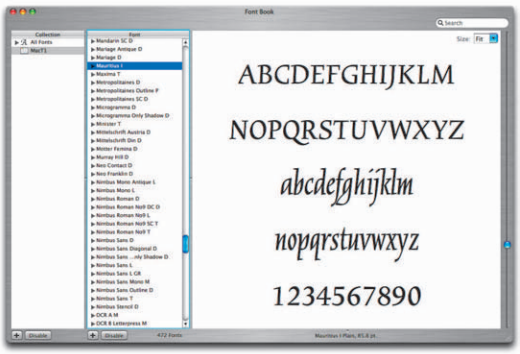
The write stuff

Handwriting is a well-used design style. But if like me your arty left-handedness means that you write like a drunken doctor, the Handwriting Fonts collection is for you. There are 300 to choose from, though you may only ever need half a dozen. Just about every style is represented, including some that would pass for that of a drunken doctor. For a limited time, you can get both collections for £259 plus VAT from the Type Marketing Company.

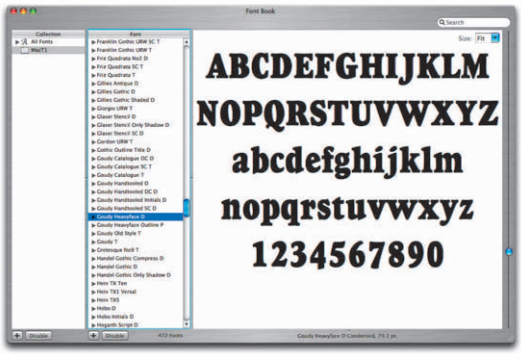
Skidoos



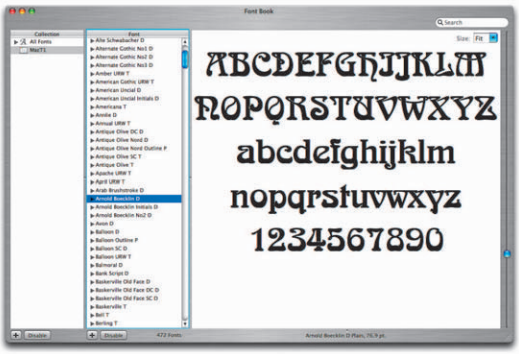
VAG Rundschrift



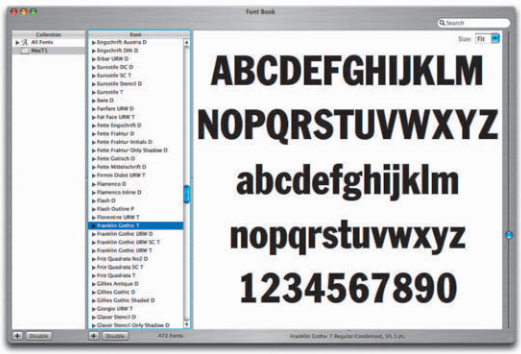
Mauritius



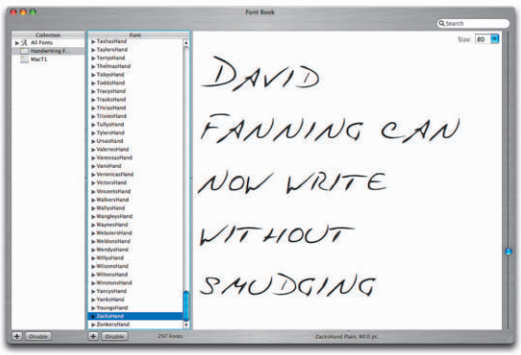
Goudy Heavyface



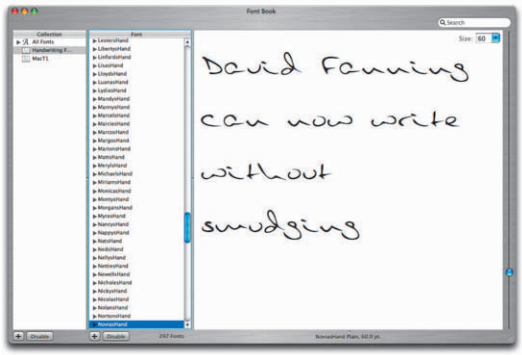
Arnold Boeklin



Franklin Gothic



Zack's Hand



Novia's Hand

There was a time when fonts were excitedly traded by pirates. The reason for the frenzied trading was twofold: fonts were expensive, and DTP was the cutting edge of creative technology.

Now, the price of fonts is drastically reduced – and collections like the Professional Font Library 1000 cost less than £150. Don't think, though, that the low price denotes a collection of novelty fonts. The fonts in this collection are the useable faces that will come in handy on a daily basis. There are plenty of old favourites too, such as Franklin Gothic, Goudy Heavyface and Arnold Boeklin. Of course, they're old favourites with me, but I'm fairly sure Arnold Boeklin has fallen out of vogue now. Whatever you think of the oldies, there are enough modern fonts of excellent quality to make this a great purchase for any designer.

David Fanning

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Wolfie antics

Wolverine's Revenge

Publisher: Aspyr www.aspyr.com
Distributor: Softline, 01883 745 111
Pros: Fun special powers, such as the visual power of smell.
Cons: Direction is determined by the camera angle, which makes control difficult.
Min specs: Mac OS X 10.2.6, 733MHz G4 processor or faster; 256MB RAM, 1.7GB hard-drive space; 3D Graphics Acceleration required (minimum ATI Radeon or NVidia GeForce 2 series card); AGP video card with 32MB of video memory (VRAM).
Price: £39 including VAT.
Star Rating: ★★★★/8.3

How would you feel if a sinister agency implanted an adamantium skeleton into your body and endowed you with various powers including retractable blades that shoot out of your knuckles? It might sound kind of cool, but the novelty would soon wear off. Imagine going to the loo while you were getting used to your Freddie Kruger blades. Anyway, that's roughly what happened to Logan – better to known to us as Wolverine.

I still don't quite get the Wolverine name, I can't help thinking the guys at Marvel (after a long night in the pub) tried to find a new animal-based superhero. Bats and spiders worked well, so why not that other fierce creature of the wild. Yes the majestic wolverine, well not exactly majestic, more like a weasel on steroids.

If you aren't familiar with the *gulo gulo*, to give it its Latin moniker, it's a member of the weasel family, and looks quite cuddly. However, it's a carnivore with a badass reputation, and weighs up to 50lbs, which is about the weight of a G5. So if you can imagine being savaged by a G5-sized weasel, you'll know to avoid the buggers in the unlikely event you ever come across one.

The game begins with Mr Wolverine being paraded in front of evil boffins just after his transformation is complete. Remarking on the marvel they have created, barely human; practically indestructible, they accidentally left the mike on in the viewing room. On hearing the less than flattering comments, Wolverine gets a bit cheesed off and vows to come and get them. The rest is simple to figure out, but still fun to play.

The controls are rather fussy – the camera tracks your movements and your direction is in relation to it. So rather than being in a fixed position behind you, you point the camera, and running forward means you run directly away from the cameras position. This isn't so bad, but when you run backwards, you run towards the camera – so you don't know where you're going. You get used to it after a bit, but it does make movements in tight corners awkward because the camera won't let you turn in tight spots. If you can get over that irritant, you'll enjoy the game.

Shirts-off
Maniacally pounding the hit and kick buttons will produce some impressive and bloody special moves. If you can master certain key combinations you'll be able to do these moves at will, but mindless hammering of the buttons saw me in good stead without the finesse suggested.

Apart from his knuckle blades, Wolverine has special Wolverine senses. The game is designed so that you use these a lot, and it adds an interesting twist. With the special-senses button held, your sense of smell and vision is heightened. Of course representing smell in a computer game must have been a challenge, but it's handled well. Particularly bad (or pungent) enemies have a kind of luminous Bisto-kid effect with clouds of green smell visible. It's sensible to check your Wolverine senses before turning any corners, because you will often see the whiff of danger hanging in the air.

Even superheroes get damaged in their fights, but Wolverine regenerates his energy after a short rest. There are also power-ups around when big baddies show up (which they do with alarming regularity), and almost act as an early warning that something is going to go down. Retracting those blades will speed recovery, so don't run around with them extended all the time.

On the subject of blood and gore, this one might be a bit much for the youngest players. This one is no worse than average, but if you aren't familiar with the level of violence in today's games, you may be a bit surprised and possibly appalled. So this isn't so much one for the kids stocking – more for your own enjoyment.

If you do manage to master any of those special moves, you're rewarded with various treats. There are also hidden comic books that give you access to things in the special-features section of the game. Generally, rewards aren't too exciting other than the new moves you acquire. But for those who like to play games until they have found every extra, hidden area and bonus level this game has lots of checkboxes for things to find.

Niff-ty features
Enhanced vision lets you see land mines and infra red beams . Bad guys also glow red and even have convenient arrows that appear, sometimes with an animated ghostly wolverine showing suggested methods of attack.

Macworld's buying advice

I can't say this game really blew me away, but a lot of effort has been put into making it enjoyable. It's obviously a big budget game, with Mark Hamill and Patrick Stewart doing the voices of the main two characters.

It is, however, a movie spin-off game, which is very often the kiss of death. This one does manage to be a good game with enough twists to make it interesting; it doesn't quite make it a *great* game, though.

David Fanning

1984

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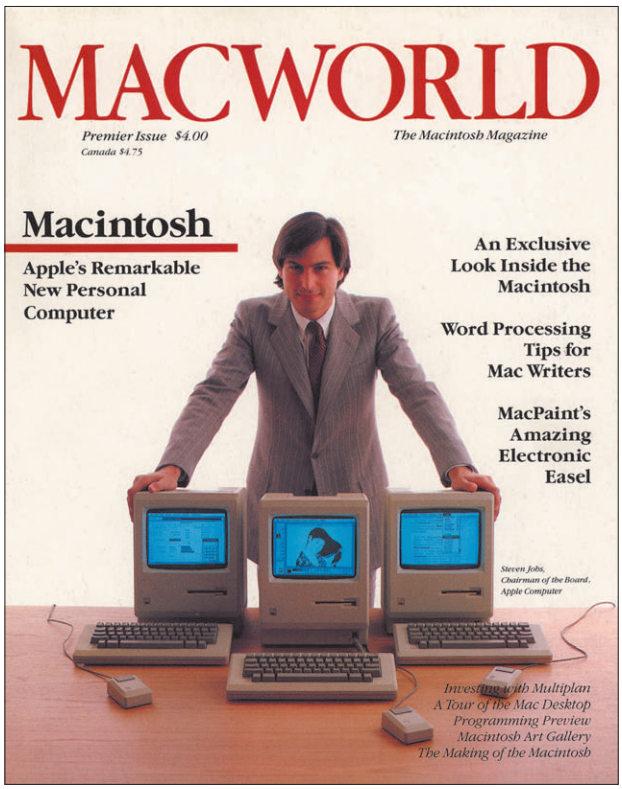
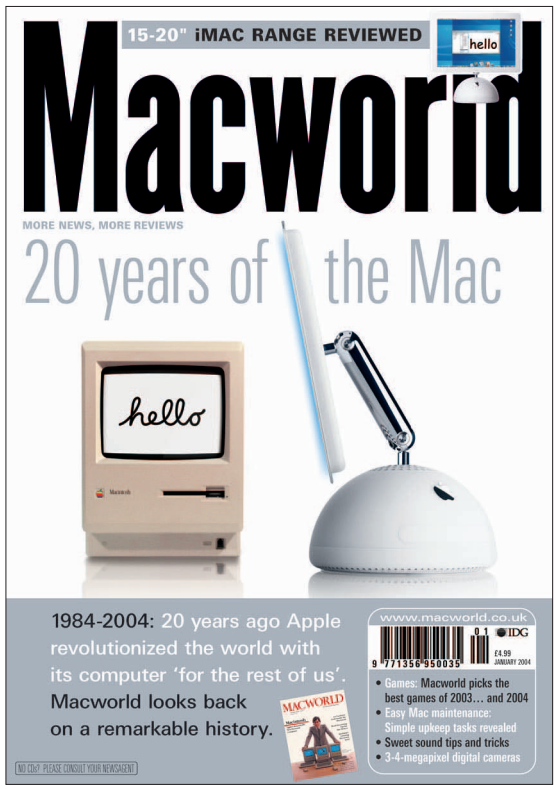
2004

continues page 70




15-20" iMAC RANGE REVIEWED
Macworld
MORE NEWS, MORE REVIEWS
20 years of the Mac
hello
1984-2004: 20 years ago Apple revolutionized the world with its computer 'for the rest of us'. Macworld looks back on a remarkable history.
www.macworld.co.uk
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• Games: Macworld picks the best games of 2003… and 2004
• Easy Mac maintenance: Simple upkeep tasks revealed
• Sweet sound tips and tricks
• 3-4-megapixel digital cameras
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20-20 vision

The making of Macintosh. By Owen Linzmayer, author of Apple Confidential 2.0.

January 24, 1984: Apple's Steve Jobs unveiled the Macintosh, which would revolutionize the world of personal computing. While initial sales were slower than expected and its general marketshare is dwarfed by Windows, there's no doubting that the arrival of the Macintosh computer changed the way we live and work today.

Apple hasn't always made the best decisions for its ground-breaking Macintosh. There have been as many blunders as blinders in the Mac's rich and colourful history, and Apple has been on the brink of buyout, merger and outright death on a number of occasions.

But today, 20 years on, Apple is again innovating not just the computer but other giant industries, such as music and entertainment through iTunes and the iPod.

Steve Jobs and the Macintosh are inextricably linked in the minds of most people. So it may come as somewhat of a surprise to learn that the Mac wasn't his idea at all. In fact, he wanted to kill the project in its infancy. Lucky for Apple and millions of dedicated users everywhere, he was unsuccessful. The story of how the Mac came to be is a fascinating tale of one man's inspiration, another's ego, and the dedication of a small band of "pirates" that forever changed the way the world computes.

continues page 72

Cold cash for a code-name

In naming his Macintosh project, Jef Raskin bucked the trend of using female code names. He thought the practice was sexist, and it was. The Annie project, for which Markkula originally tried to recruit Raskin, was a thinly veiled reference to Little Annie Fanny, the well-endowed cartoon character (created by Harvey Kurtzman and Willy Elder) that regularly appeared in Playboy back then.

It's often reported that Raskin misspelled the name of his favourite variety of apples, but that's unlikely given that he was manager of publications. "I intentionally changed the spelling," insists Raskin. "I'm a pretty good speller. Writing is one of the things I do well. The name of the apple is McIntosh. I thought that would lead us to a conflict with McIntosh Laboratory, the hi-fi manufacturer. So I used the spelling Macintosh, figuring that if it conflicted with the overcoat, who cares?"

Unfortunately, the slight spelling change wasn't enough to keep Apple in the clear. When Apple attempted to trademark the name Macintosh in 1982, the request was denied because it phonetically infringed on the trademark already owned by McIntosh Laboratory (www.mcintoshlabs.com), which operated at the very high end of the high-fidelity food chain.

On November 16, 1982, Steve Jobs wrote a letter to the president of McIntosh Labs, Gordon Gow, requesting a worldwide release for the name Macintosh for use in the computer industry. "We have become very attached to the name Macintosh. Much like one's own child, our product has developed a very definite personality," wrote Jobs. Gow visited Cupertino shortly thereafter to take a look at what Apple was developing, but on the advice of his legal counsel, he rejected Jobs' request.

Apple considered shortening Macintosh to MAC, which would stand for "Mouse-Activated Computer" outside the company, and "Meaningless Acronym Computer" internally. However, in late March 1983, Apple managed to license the rights to the name and in 1986 purchased the trademark outright. Although the terms of these agreements remain confidential to this day, it has been reported that Apple paid $100,000 in cash for the Macintosh name. According to McIntosh's legal counsel, that's "substantially off the mark" and the real payoff was "significantly higher."

The Making of Macintosh is taken from Apple Confidential 2.0, **the second edition of the essential Apple compendium. It contains 60 new pages of material, several brand-new or greatly expanded chapters, plus hundreds of new photos, quotes, margin notes, timelines, etc. ISBN 1-59327-010-0 It will be available in January 2004, at a list price of $19.95 – available through Computer Bookshops UK, Amazon, and booksellers. www.owenink.com**

The magnificent seven

Instead of letting the Mac team members wallow in obscurity, Apple broke with industry tradition and heavily promoted them as avant-garde artists. Shown here are (left to right) Andy Hertzfeld, Chris Espinosa, Joanna Hoffman, George Crow, Bill Atkinson, Burrell Smith, and Jerry Manock.

In 2004, when Apple and all the world's Macintosh enthusiasts will be celebrating the Mac's 20th anniversary, one man will be quietly celebrating its 25th. That man is Jeffrey Frank "Jef" Raskin, the true father of the Macintosh. Raskin, a professor turned computer consultant, wrote the Integer BASIC manual for the Apple II in 1976. When he joined Apple on January 3, 1978 (exactly one year after its incorporation), as employee #31, the 34-year-old Raskin was manager of the publications department. Over time he started a new product review division and an application software division. In the spring of 1979, chairman Mike Markkula asked Raskin if he would work on a project code-named Annie, the goal of which was to produce a $500 game machine (shades of the ill-fated Bandai/Apple Pippin). At the time, Jobs and cohorts were working on the business-oriented Lisa project, and the company felt it needed a lower-cost product than the Apple II, which was selling for well over $1,000 in a basic configuration without a disk drive or monitor.

"I told him it was a fine project, but I wasn't terribly interested in a game machine," remembers Raskin. "However, there was this thing that I'd been dreaming of for some time, which I called Macintosh. The biggest thing about it was that it would be designed from a human factors perspective, which at that time was totally incomprehensible." Markkula was intrigued and asked Raskin to elaborate on his ideas and investigate the feasibility of putting them into practice.

By late May, Raskin had sketched out the basic ideas behind a computer for the "Person in the Street," known as the PITS, for short. Raskin had grown increasingly frustrated at the complexity of the Apple II. Its open architecture was good in the sense that you could fill its slots with anything you wanted, but that flexibility forced the user to be a pseudo-technician and made it extremely difficult for developers to create products that worked with all configurations.

"Considerations such as these led me to conceive the basic architecture and guiding principles of the Mac," explains Raskin. "There were to be no peripheral slots so that customers never had to see the inside of the machine (although external ports would be provided); there was a fixed memory size so that all applications would run on all Macintoshes; the screen, keyboard, and mass-storage device (and, we hoped, a printer) were to be built-in so that the customer got a truly complete system, and so that we could control the appearance of characters and graphics."

Physically, the computer would be contained in an all-in-one case without cables. Raskin expected people to grow so attached to their Macs that they would never want to leave home without them, so portability was a key concern. He envisioned a weight just under 20lbs and an internal battery providing up to two hours of operation. His wish list also included an 8-bit microprocessor with 64K of RAM, one serial port, a modem, real-time clock, printer, 4-5-inch diagonal screen with bitmapped graphics, and a 200K, 5.25-inch floppy-disk drive all built in.

BASIC and FORTH programming languages were to be contained in read-only memory (ROM), as were "self-instructional" programs that were so easy to use, manuals would be unnecessary. Raskin described a user interface in which everything – writing, calculating, drafting, painting, etc – was accomplished in a graphical word processor-type environment with a few consistent and easily learned concepts. "For example, the calculator abilities will apply to numbers that are entered the same way any text is entered. The traditional concept of an operating system is replaced by an extension of the idea of an on-line editor."

While that may not sound much like the Mac as we know it today, his reasoning was that there should be no modes or levels, a concept that has endured.

Raskin even proposed an official name for his Macintosh computer: the Apple V. He figured that it could

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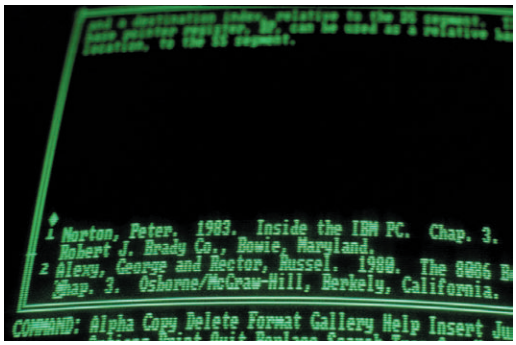

1 Norton, Peter. 1983. Inside the IBM PC. Chap. 3.
Robert J. Brady Co., Bowie, Maryland.
2 Alexy, George and Hector, Russel. 1980. The 8086
Chap. 3. Osborne/McGraw-Hill, Berkely, California.
COMMAND: Alpha Copy Delete Format Gallery Help Insert

Before the Macintosh, personal computing used to look like this. 20 years after the launch of the Mac, it now looks like this.

go into production by September 1981, for sale that Christmas with a price of $500. As volume increased, he expected the price to drop to $300 after 18 months.

"Jobs hated the idea," Raskin recalls. "He ran around saying 'No! No! It'll never work.' He was one of the Macintosh's hardest critics, and was always putting it down at board meetings. When he became convinced that it would work, and that it would be an exciting new product, he started to take over... He was dead set against the Macintosh for the first two years.

"He said it was the dumbest thing on earth, and that it would never sell. When he decided to take it over, he told everybody that he had invented it."

Although Jobs strongly opposed the Macintosh when it was first proposed, Raskin nonetheless won the board's approval to begin a formal research project in September 1979. As he brainstormed, Raskin kept coming up with more wonderful things to add to his computer. It didn't take him long to realize that he couldn't include everything he wanted and still produce a computer with a $500 price tag, so he settled on a new goal of $1,000. "There is no doubt that we want more – more mass storage, a built-in

continues page 74

Steve Jobs in Macworld

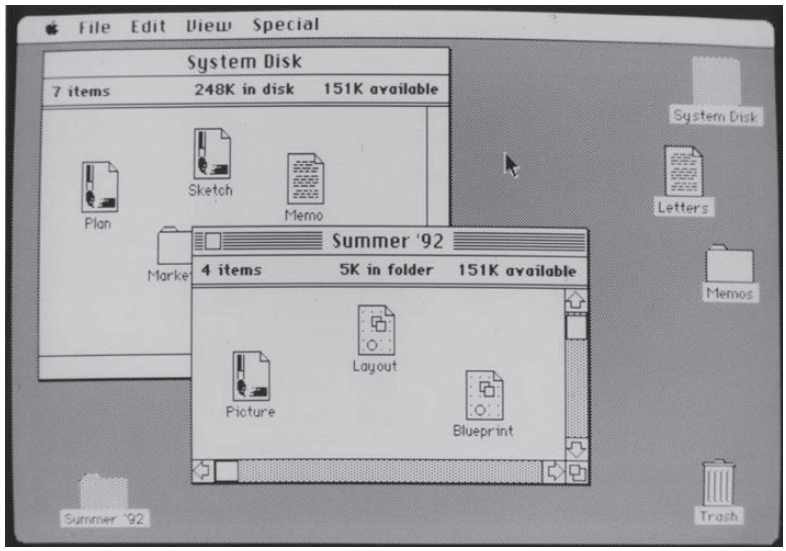
This essay by Steve Jobs originally appeared on page 135 of the premier issue of Macworld in 1984.

The people who are doing the work are the moving force behind the Macintosh. My job is to create a space for them, to clear out the rest of the organization and keep it at bay. I can't spend enough time here, unfortunately, because I have other responsibilities. But every spare moment I have, I dash back because this is the most fun place in the world.

This is the neatest group of people I've ever worked with. They're all exceptionally bright, but more importantly they share a quality about the way they look at life, which is that the journey is the reward. They really want to see this product out in the world. It's more important than their personal lives right now.

The Apple II had a magical feel about it. You couldn't quantify it, but you could tell. The Macintosh is the second thing in my life that's ever felt that way. Opportunities like this don't come along very often. You know somehow that it's the start of something great. So everyone wants it to be perfect and works really hard on it. Everyone feels a personal responsibility for the product.

The Macintosh is the future of Apple Computer. And it's being done by a bunch of people who are incredibly talented but who in most organizations would be working three levels below the impact of the decisions they're making in the organization. It's one of those things that you know won't last forever. The group might stay together maybe for one more iteration of the product, and then they'll go their separate ways. For a very special moment, all of us have come together to make this new product. We feel this may be the best thing we'll ever do with our lives.



Welcome windows (no, not that Windows...)
This prototype Macintosh screen (courtesy of Steve Capps) shows the basic but still-recognizable Mac graphical user interface that lives on in Mac OS X 10.3 Panther.

Timeline

1979

May: **Jef Raskin proposes computer for the "person in the street", which becomes Macintosh project.** September: **Apple's board approves the beginning of a formal research project for Raskin's proposal.** November: **Steve Jobs and Bill Atkinson visit Xerox PARC, following previous visits by Jef Raskin. The visits inspire Apple's Lisa and Mac.**

1980

September: **Mac granted three-month reprieve by Apple board that wants to concentrate on Apple III.** December: **Apple goes public. It's the largest initial public offering since Ford in 1956.**

1981

January: **Steve Jobs muscles in on Mac project, from Lisa project.** March: **Mike Markkula replaces Mike Scott as president; Steve Jobs succeeds Markkula as chairman.** August: **IBM PC introduced, running Microsoft DOS.**

1982

February: **Mac case design finalized.** March: **Despite pleas from Markkula and Jobs, Raskin resigns after Jobs demands software role.** July: **Apple rolls out the Apple Dot Matrix printer priced at $2,195.** December: **Apple first PC maker to reach $1 billion in annual sales.**

1983

January: **Apple ships first Lisa computer ($9,995).** April: **Apple hires John Sculley, formerly president of Pepsi-Cola, as the company's new president and CEO. Jobs takes over Mac project.** November: **Lisa and Mac divisions combined.** December: **Apple releases the ImageWriter printer ($675).**

Apple boss Mike Scott — Mike Markkula — John Sculley

Mac user-interface genesis

In 1970, eager to be on the cutting edge of information technology, Xerox gathered many of the best minds in the computer industry and ensconced them in the Palo Alto Research Center (PARC) in California. Its mission was to create the future without worrying about the practicality of actually marketing their creations as commercial products.

By 1973, it had succeeded in giving birth to the Xerox Alto, the embodiment of many computing firsts. It was the first personal computer in the sense that it was designed to be used by a single person. Rather than putting fully formed characters on screen one at a time, the Alto created both text and graphics out of individually controlled pixels using a process called bit-mapping. Using Ethernet, another PARC creation, the Alto could network with other Altos and laser printers, yet another PARC invention. It had a funny pointing device, a three-button mouse, invented in the 1960s by Douglas Carl Engelbart.

Recommended by Jef Raskin and software engineer Bill Atkinson, Jobs approached the Xerox Development Corporation, the copier giant's venture capital branch, and proposed, "I will let you invest a million dollars in Apple if you will sort of open the kimono at Xerox PARC." At the time, Apple was enjoying meteoric growth. Xerox was anxious to get a piece of the action and was more than willing to allow an Apple contingent to take a peek at PARC.

When Jobs first visited in November 1979, he saw with his own eyes what all the fuss was about. He was so excited that he returned in December with Apple engineers and executives. Jobs began jumping around, shouting, "Why aren't you doing anything with this? This is the greatest thing! This is revolutionary!" If Xerox didn't recognize the value of its own work, Jobs certainly did. When he saw the Smalltalk development environment running with its movable overlapping windows and pop-up menus, he knew that's what he wanted, and he instructed the Lisa crew to begin working in that direction.

Apple didn't get blueprints from Xerox, but rather inspiration. "Just like the Russians and the A-bomb," observed PARC's director, George Pake, "they developed it very quickly once they knew it was doable." Eventually more than 15 Xerox employees would defect to Apple, including Steve Capps, Bruce Horn, Alan Kay, and Barbara Koalkin.

printer, colour graphics – but we feel that low price and portability are the most important attributes, and we have kept strenuously to these goals," Raskin wrote in a memo.

Raskin needed someone to turn his ideas into prototypes. His former UC San Diego student, Bill Atkinson, was a respected member of the Lisa team, and Atkinson was impressed with the outstanding work Burrell Carver Smith was doing as a repairman in the Apple II maintenance department.

Atkinson introduced Smith to Raskin as "the man who's going to design your Macintosh," to which Raskin replied, "We'll see about that." Smith whipped together a makeshift prototype using a Motorola 6809E microprocessor, a television monitor, and the guts of an Apple II. Duly impressed, Raskin made him the second member of the Mac team.

In time, Raskin took on an assistant, and Steve Wozniak began part-time work on the Mac, but Smith continued doing most of the detailed electronic design and breadboarding. This skeleton crew toiled in what had been Apple's first office and the birthplace of the Apple II and Lisa: Suite B3 at 20833 Stevens Creek Boulevard, near the Good Earth restaurant in Cupertino. The Macintosh research project was not destined to become an actual product any time soon. Still, Raskin remained obsessed with designing a computer that could be sold at a low price and manufactured in large quantities. Raskin did everything he could to "keep the project from burgeoning into a huge, expensive, and time-consuming effort."

Every feature required a trade-off between price and performance. They wanted a colour monitor, but monochrome would have to do. The Lisa's 68000 microprocessor was desired, but the 6809E was much cheaper. A floppy disk drive would be great, but a digital cassette drive kept the cost down. More memory would be nice, but 64K was considered adequate.

While Raskin's small team was quietly toiling in the Mac "skunkworks," turmoil was brewing elsewhere at Apple. Following the fateful visits to Xerox PARC, Jobs was making waves and enemies as he steered the Lisa project away from its original mandate as a $2,000 business computer into a much more expensive downsized Xerox Alto. In September 1980, the board of directors wanted to

1984

January 24: **Macintosh 128K introduced ($2,495). System 1.0 is made up of six files totalling 216K. Landmark "1984" commercial airs during Super Bowl XVIII. First issue of Macworld, featuring Steve Jobs on the cover, hits newsstands. Microsoft releases Word 1.0 for Mac.** May: **System 1.1 introduces Set Startup command.** September: **Macintosh 512K ($3,195), nicknamed "Fat Cat" due to its massively increased memory.**

1985

January: **First ever Macworld Expo is held at Moscone Center in San Francisco. Lisa 2 renamed Macintosh XL. Claris releases FileMaker Pro. Apple releases LaserWriter at $7,000. Microsoft introduces Excel for Mac.** April: **System 2: Drag disk to Trash.** July: **Aldus releases PageMaker, a page-layout application that ushers in the desktop publishing era.** September: **Following clashes with John Sculley, Apple co-founder Steve Jobs resigns from Apple; forms a new computer company, NeXT.** November: **Microsoft licenses Mac OS from Apple; ships Windows 1.0, almost two years after its originally promised release date.**

1986

January: **Apple ships Mac Plus, which went on to enjoy the longest life span of any Mac model. Releases System 3.0: HFS, RAM Cache. First Japanese version of Mac OS.** February: **Steve Jobs invests $10 million in Pixar, a computer division at LucasFilm. System 3.1.** April: **Mac 512Ke.** June: **System 3.2 fixes 30 bugs, adds Calculator.**

1987

January: **System 3.3.** March: **Macintosh II, which claims the distinction of being both the first colour Mac and the first expandable Mac, debuts (from £3,500). Mac SE (System Expansion). Apple releases System 4.0. QuarkXPress debuts. Microsoft releases PowerPoint 1.0 – The Mac version of the presentation software appears some three years before its counterpart.** October: **Apple releases System 4.2 and Finder 6.0, combining into System 5.0.**

OS	1.0	1.1		2.0			3.0	3.1		3.2		3.3	4.0		4.2	5.0		
MHz	8MHz											16MHz						
Chips	68000											68020						
Boss	John Sculley																	

cancel the Macintosh project to concentrate on getting the jinxed Apple III out the door and getting the Lisa project under control, but Raskin pleaded for and won a three-month reprieve. During this time, president Mike Scott restructured the company and removed Jobs from the Lisa project. Jobs was furious, and to cool his heels Scott sent him out on the road to represent Apple prior to its initial public offering of stock on December 12, 1980.

When the IPO was over, "Jobs was at loose ends because finally [the board] realized that he was totally incompetent as a manager," recalls Raskin. Jobs set his sights on the Macintosh project. As software wizard Andy Hertzfeld remembers it: "The Lisa team in general told Steve to fuck off. Steve said, 'I'll get this team that'll make a cheap computer and that will blow them off the face of the earth.' Then Steve saw that Raskin had critical mass: He had a hardware engineer and a software engineer. Since Steve was a bigger kid than Raskin, he said, 'I like that toy!' and took it."

"I just decided that I was going to go off and do that myself with a small group; sort of go back to the garage, to design the Macintosh," recalls Jobs.

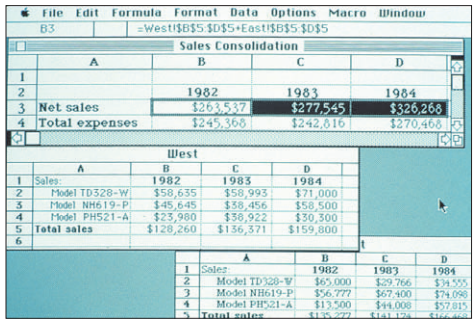
"They didn't take us very seriously. I think Scotty was just sort of humouring me." The board was only too happy to let Jobs go off and spin his wheels on the Mac, which they viewed as a relatively unimportant research project.

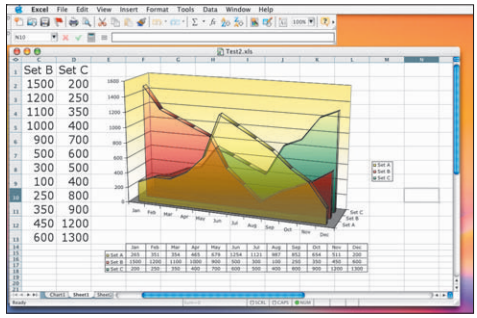
The board may have seen it that way, but Jobs viewed it as his opportunity to prove his worth as a technological innovator. At first, Jobs was content to manage only the hardware side of the project, leaving Raskin in charge of software and documentation. "I was more interested in the interface than the chips inside," says Raskin, so the move didn't trouble him too much. Besides, with Jobs on board, perhaps the project would get the funding and support needed to actually create a product. Would it ever!

Soon after Jobs got involved, the Mac team took over the second floor in a small two-story building known as Texaco Towers due to its proximity to a gas station on the corner of De Anza and Stevens Creek Boulevards.

(The gas station is vacant now, Texaco Towers is occupied by a different company, and Apple's former City Center office complex across the street dominates the intersection.) There was no sign on 20431 Stevens Creek Boulevard, and the office wasn't even listed in the company's telephone directory. They were out in the sticks, which was perfect for the maverick project Jobs had in mind.

The Mac quickly went from being a research project to a full-blown product development effort with several dozen employees. Jobs seriously underestimated the amount of work yet to be done and the time it would take. He figured his team would ship the Macintosh in early 1982, just a year away. So confident was he in this prediction that he bet Lisa project manager John Couch $5,000 that the Mac would beat Lisa to market, even though the Lisa had been under serious development for more than two years and the Mac project was just starting in earnest.





When the Mac missed the 1982 ship date, chairman Markkula presented Jobs with a woman's black slip and told him to make sure the garment was "the Mac's last slip." The Lisa appeared on January 19, 1983, more than a year before Mac, and Jobs made good on his $5,000 bet.

One of the most significant advances in the Macintosh project had come when Smith figured out an ingenious way to replace the 6809E microprocessor with the more powerful 68000 used by the Lisa. Although Raskin resisted at first because it would drive up the cost of the computer, Jobs was all for the change. With Mac and Lisa sharing the same microprocessor, it was easier for the Mac team to use some of the Lisa technologies and software, including Atkinson's amazing QuickDraw routines. However, Jobs steadfastly refused to make the Mac compatible with the Lisa or vice versa.

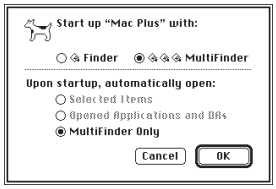
continues page 76

Microsoft Excels

Microsoft first developed Word for Mac and Excel for Mac 20 years ago for the debut of the Mac, and is the largest independent software developer for the Mac.

1988

January: **Microsoft launches Windows 2.03, featuring Mac-like icons and overlapping Windows.** March: **Apple files federal lawsuit against Microsoft claiming copyright infringement.** June: **Apple releases System 6.0, includes MultiFinder (below).** September: **Mac IIx ships in Mac II case but with dual 1.44MB floppy drives, and is easier to upgrade.**



6.0

25MHz
68030

1989

January: **Mac SE/30.**
February: **The Beatles' Apple Corps recording company sues Apple for marketing products with music synthesizing capabilities, claiming a violation of a 1981 trademark coexistence pact. It won't be the last legal dispute between. Apple Corps and Apple Computer. Microsoft releases Office 1.0.**
September: **Apple releases the Macintosh Portable, a 16lb machine that wasn't all that portable (£3,995). Mac IIci.** December: **Xerox sues Apple over Lisa and Mac user-interfaces.**

6.0.2

1990

March: **The Macintosh IIfx ("Wicked Fast") debuts. At 40MHz, it's one of the fastest personal computers of its time. From £6,970, it's also the most expensive Mac ever.** February: **Adobe intoduces Photoshop, Type Manager.** March: **Xerox suit against Apple dismissed.** May: **Microsoft releases Windows 3.0.** September: **System 7 beta released to developers. NeXTStep 2.0 introduced. Jean-Louis Gassé leaves Apple.** October: **Mac Classic, Mac IIsi, Mac LC released as Apple plans consumer blitz.** November: **Apple announces QuickTime video technology.**

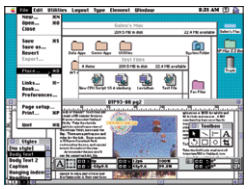
6.0.5
40MHz

1991

March: **Low-cost laser printers, including the StyleWriter and Personal LaserWriter LS, debut.** June: **Apple ships System 7 – the first Mac OS to require a hard-disk drive for installation. System 7 introduced 32-bit addressing (allowing more than 8MB RAM), aliases, Balloon Help, Views control panel.** October: **The PowerBook 100, the first true Mac laptop, debuts at £1,375 – alongside PowerBook 140 and PowerBook 170. PowerBook line was phenomenally successful. Also shipping Mac Classic II, Quadra 700 and Quadra 900.**

7.0

68040



Symbolizing Jobs' defiant attitude and Apple's internecine rivalry was the Jolly Roger that flew over the Mac team's newest building, Bandley III (10460 Bandley Drive). Jobs referred to his group as pirates, and in keeping with that spirit, he began systematically raiding the Lisa project for key technologies and people (such as Atkinson and Steve Capps) without regard for the overall well-being of Apple. As Hertzfeld explained, "We looked for any place where we could beg, borrow, or steal code."

Needless to say, the Mac began looking a lot like a little Lisa. QuickDraw and other Lisa routines increased the size of the Mac's ROM. It soon became apparent that the Mac would share so much of the Lisa's interface that a mouse was a necessity, much to Raskin's dismay; he was leaning toward a lightpen or joystick as a graphic input device. "I couldn't stand the mouse," says Raskin. "Jobs gets 100 per cent credit for insisting that a mouse be on the Mac."

However, Raskin did prevail in convincing the team not to use a three-button mouse like the Alto, but rather a one-

The birth of desktop publishing

Jonathan Seybold, founder of the influential Seybold Seminars, says that when Steve Jobs showed him the Macintosh he was convinced it was the future of not only computing but also publishing. "It was very clear to me that the distinction between computing and information science and graphic arts would just go away," he says. In the summer of 1984, Jobs called Jonathan Seybold. "Steve wanted to see me urgently," Seybold recalls. "He said they had a deal with Adobe, they were signing a deal with Linotype, they had real fonts. I went to Cupertino and walked into this tiny room, and there stood Jobs and [Adobe co-founder John] Warnock with a Mac and a LaserWriter. He showed me what they were up to. I turned to Steve and said, 'You've just turned publishing on its head. This is the watershed event.' When I turned to John, he has this look on his face. He was just so happy. I could tell he was thinking, 'This made the company. This is my validation.' It was a magic moment."

It was the end of 1984, and the stage was set for the introduction of the Apple LaserWriter. The LaserWriter debuted to great fanfare at Apple's annual stockholder meeting on January 23, 1985, where Steve Jobs's legendary showmanship was on display. Onstage the Pointer Sisters belted out "I'm So Excited." In the audience were all 27 Adobe employees who had made the trip to Cupertino's Flint Center after toasting the culmination of their two-year effort at Adobe's office the evening before. The jubilant engineers who had toiled in obscurity were seeing their product in a place where they could gauge public's reaction to it.

"You couldn't walk out of there not feeling you were doing something great," says Dan Puttman, Adobe employee #2 and former senior vice president of the North American systems division.

The LaserWriter cost $6,995 – steep by today's standard, yet astoundingly cheap compared with the IBM and Xerox laser printers of the day, which were priced three to ten times that. Plus, the LaserWriter had Adobe's special ingredient: PostScript. Almost immediately, analysts commented on the LaserWriter's output, praising its "near-typeset quality."

With the release of the LaserWriter, Adobe Systems was on the corporate map. The two soft-spoken scientists [co-founders Warnock and Chuck Geschke] were thrust into the media spotlight, fielding interview requests to explain why the world's second-largest computer company had bet its future on an unknown startup.

When three upstart companies – Adobe Systems, Aldus Corporation, and Apple Computer – joined forces to create desktop publishing in 1985, shockwaves rumbled through the publishing world. Thanks to the combination of the Apple Macintosh, Aldus PageMaker, and the Adobe PostScript-equipped LaserWriter, publishing was liberated from the confines of proprietary typesetting and printing systems.

This article is excerpted from Pamela Pfiffner's Inside the Publishing Revolution: The Adobe Story (Adobe Press/Peachpit Press, 2003). Pfiffner is editor-in-chief of www.creativepro.com

1992

April: **Microsoft releases Windows 3.1; it became one of the first widely used PC GUI operating systems.** March: **Mac LC II ships.** April: **Court declares that most Windows elements covered by 1985 Apple-Microsoft agreement. Microsoft releases Windows 3.1.** May: **IBM, Motorola, and Apple team up to make the PowerPC family of single-chip, reduced instruction set computing (RISC) microprocessors. Quadra 950 announced (pictured right).** August: **Apple releases System 7.1, which introduces Fonts folder, Numbers and Date & Time control panel. PowerBook 145.** September: **Performa 200, 400 and 600 released. NeXTStep 3.0 ships.** October: **Mac IIvi, Mac IIvx – last of the Mac II series. PowerBook 160, 180. Apple unveils new PowerBook Duo series of laptops with desktop docks: Duo 210, 230. The much-missed Duo concept was discontinued in February 1997 – the last being the first PowerPC Duo, the 2300.**

OS 7.1
MHz 40MHz
Chips 68040
Boss John Sculley

1993

February: **Apple ships Centris 610, 650, Mac Color Classic (which notched up the 10 millionth Mac sale), LC III, PowerBook 165c (pictured), Quadra 800.** April: **Performa 450.** June: **Michael Spindler becomes CEO. John Sculley continues as Apple chairman. Performa 520, PowerBook 180c.** July: **Centris 660AV, Quadra 840AV – the AV stood for Audio/Video. Microsoft releases Windows NT 3.1.** August: **Apple launches the Newton MessagePad handheld. A federal judge dismisses Apple's Windows 2.03 suit against Microsoft. The decision is upheld on appeal. Apple ships PowerBook 165.** October: **John Sculley resigns. Mike Markkula is elected new chairman. Mac Color Classic II, LC 475, Duo 250, 270c. Quadra 605, 610, 650, 660AV, and the US-only Mac TV (right).**

7.1.1

Michael Spindler

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button version that would be much easier for novices.

Working with industrial designer Jerrold C Manock, Jobs also pushed for the Mac's distinctive Cuisinart-inspired upright case, and that necessitated a detached keyboard. With a rough idea of what the computer would look like physically, the design of the Mac's completely automated factory in Fremont, California, got under way in the autumn of 1981, even though Smith was still furiously working on yet another Mac prototype and many of the technical details had yet to be finalized. By February 1982, the case design was fixed and the signatures of the team members were collected and transferred to the mould for the inside of the case.

Things were really picking up steam that February when Jobs approached Raskin and cavalierly announced, "I'm going to take over software, and you can run documentation." That was more than Raskin could bear. He replied, "No, you can have documentation too, I resign."

The showdown was inevitable, according to Dan Kottke, one of the Mac engineers. "Jef Raskin and Steve Jobs both have large egos. Jef could have stayed on if he hadn't gone against Steve. But he feels very strongly about certain things and won't shut up."

Jobs and Markkula asked Raskin to reconsider, so he took a one-month leave of absence. Upon his return, Raskin was offered the leadership of a new research division. "Been there, done that," was the essence of his reply, so on March 1, 1982, he officially tendered his resignation.

Jobs was hell-bent on proving that he could produce a better computer than the Lisa, but it was becoming painfully apparent that the real competition was not with the Lisa division, but rather with International Business Machines. IBM had introduced its Personal Computer on August 12, 1981, and the market had responded favourably, to say the least. Much to its dismay, Apple began losing market share (sliding from 29 to 24 per cent in 1982) to what it considered a clearly inferior product.

Although the Mac team members derided the IBM PC in public, privately they realized Big Blue was a formidable competitor and that they had better get their own product out the door. The window of opportunity was slowly closing, and if Apple didn't finish the Mac soon, it might lose out altogether. "We had been saying, 'We're going to finish in six months' for two years," recalls Hertzfeld, but Jobs laid down the law and pushed to ship Macintosh on May 16, 1983, at the National Computer Conference in Anaheim, California.

Jobs wanted to avoid licensing copyrighted typefaces – such as Times, Century, Helvetica, and Gothic – for the Mac, so he instructed artist Susan Kare (**www.kare.com**) to design knockoffs. Kare, who had grown up in the suburbs of Philadelphia, wanted to name her fonts after the railroad stations of the Paoli Local train: Ardmore, Merion, Rosemont, etc. Jobs liked the idea of using city names, but insisted on world-class cities that corresponded to the original typefaces: New York (Times), Geneva (Helvetica), London (Old English), etc. The frivolous font known as San Francisco was originally named Ransom, because documents created with it looked like kidnappers' notes.

By the way, Kare designed all the original Mac fonts except Venice, which was the creation of Bill Atkinson.

Facing a hard deadline forced the team to make several major decisions that resulted in a sort of domino effect. High-resolution graphics had always been a primary goal for the Mac, but even as late as 1982 the nine-inch diagonal monitor could display only 384-x-256 pixels. That was certainly acceptable for graphics, but not exactly at the leading edge of technology.

George Crow, analogue manager, increased the resolution to the final dimensions of 512-x-342 pixels, allowing the Mac to display 80 columns of fixed-pitch (mono-spaced) text. With the increased resolution of the bitmapped display, more memory was needed. Like Raskin before him, Jobs thought that 64K of RAM was acceptable, but the team convinced him that 128K was needed (actually, they wanted more, so they secretly designed a way to easily increase memory by swapping chips).

More memory meant larger programs, and the 200K, 5.25-inch floppy disk drive no longer seemed like an adequate mass-storage device.

Unbeknownst to Jobs, his engineers had anticipated

continues page 78

"The Mac is meant to supplant the PC on the desks of corporate America, just as the PC supplanted our own Apples over the last 18 months."
John Sculley (Forbes, February 13, 1984)

"It's better to be a pirate than to join the Navy."
Steve Jobs, explaining the appeal of being part of the original Macintosh team)

"The most important thing Steve [Jobs] did was erect a giant shit-deflecting umbrella that protected the project from the evil suits across the street."
Macintosh software wizard Andy Hertzfeld (Rolling Stone, April 4, 1996)

1994

February: **Apple ships a DOS-compatible Quadra 610.**
March: **PowerPC processors make their Mac debut, with the release of the Power Mac 6100. Price: £1,499. Also released: Power Mac 7100 and 8100. Apple publicly announces Copland, its next-generation operating system, will ship in 1995 and be followed by another OS, code-named Gershwin, in 1996. It doesn't and it won't. Apple releases System 7.1.2.**
May: **System 7.1.3. PowerBook 520c, 540c, Duo 280c.**
July: **PowerBook 150, Quadra 630.**
September: **Apple announces its intent to support Mac clones, licensing Radius, Power Computing, and Umax.** October: **System 7.5 introduces QuickDraw GX, WindowShade.** November: **The Mac tops the 100MHz mark, with the PowerPC 601-powered Power Mac 8100. Apple petitions Supreme Court over Windows ruling.**

1995

February: **The Supreme Court declines to review Apple's copyright infringement case against Microsoft, ending the seven-year legal dispute.** March: **System 7.5.1.**
May: **The first PCI-based Mac, the Power Mac 9500 (right), ships. Price: $5,300. Also, Power Mac 7200, 7500, 8500. And PowerBook 190, 500, 5300 (plagued by exploding batteries and cracked cases), Duo 2300.**
June: **Apple launches eWorld, an online service. After failing to catch on, eWorld shuts down in March 1996.**
August: **System 7.5.2 introduces OpenTransport. Microsoft releases Windows 95.** September: **Apple's 1995 fiscal-year sales top $11 billion.** October: **The first multi-processor Mac ships – but not from Apple. DayStar Digital's DayStar Genesis MP 528 features four 132MHz PowerPC 604 processors. Price: $10,000.**
November: **Apple releases Copland beta. Following the release of Toy Story, Pixar goes public. The 30 million shares owned by Steve Jobs are worth an estimated $1.17 billion.**

7.1.2 7.1.3 7.5 7.5.1 7.5.2

180MHz PowerPC 601

200MHz PowerPC 604

"He's a very motivational kind of guy, like a Roman legion commander. He really knows how to motivate small groups of people to produce."
Mac team member Joanna Hoffman, describing Steve Jobs' managerial style. (Computers & Electronics, March 1984)

"He would have made an excellent King of France."
Jef Raskin (Time, January 3, 1983)

Since Jobs was dead-set against including any expansion slots in the Mac, the engineers tried to sneak one into the design by calling it a diagnostic port. Jobs caught on and demanded its removal.

this problem and were already working on a solution based upon a new 400K, 3.5-inch drive from Sony.

The May 1983 ship date came and went, and still the Mac wasn't complete. Each of the hardware changes took longer than expected, but nothing took as much time as completing the software. Even though Jobs had assembled many of Apple's brightest minds in the Mac division, doing the impossible takes time, especially when you have a perfectionist like Jobs as a boss. "Tact is a word you don't use to describe him," says Espinosa.

"Steve will just walk up to your desk, look at what you're doing and say, 'That's shit.'"

Despite the unbelievable pressure they were under, Mac team members were spotted around the Apple campus wearing T-shirts that read "90 HRS/WK AND LOVING IT". This dedicated band of pirates had bought into Jobs' dream of changing the world, and they worked themselves to exhaustion to make the Macintosh the best damn computer they could.

Finally, after spending $78 million in development costs, Apple introduced the Macintosh to a packed house at the annual shareholder meeting held in the Flint Center at De Anza College on January 24, 1984.

As master of ceremonies, Jobs strode on stage and recited a few verses from Bob Dylan's The Times They Are A-Changin' before introducing Apple's directors to dispense with the boring corporate and financial news. When Jobs retook the stage, he pumped up the crowd with the following speech:

"It is 1958. IBM passes up the chance to buy a young, fledgling company that has just invented a new technology called xerography. Two years later, Xerox is born, and IBM has been kicking itself ever since.

It is ten years later, the late '60s. Digital Equipment Corporation and others invent the minicomputer. IBM dismisses the minicomputer as too small to do serious computing and, therefore, unimportant to its business. DEC grows to become a multi-hundred-million dollar corporation before IBM finally enters the minicomputer market.

It is now ten years later, the late '70s. In 1977, Apple, a young fledgling company on the West Coast, invents the Apple II, the first personal computer as we know it today. IBM dismisses the personal computer as too small to do serious computing and, therefore, unimportant to its business.

The early '80s-1981. Apple II has become the world's most popular computer, and Apple has grown to a $300 million corporation, becoming the fastest-growing company in American business history. With over 50 companies vying for a share, IBM enters the personal computer market in November of 1981 with the IBM PC.

1983. Apple and IBM emerge as the industry's strongest competitors, each selling approximately $1 billion worth of personal computers in 1983.

The shakeout is in full swing. The first major firm goes bankrupt, with others teetering on the brink. Total industry losses for 1983 overshadow even the combined profits of Apple and IBM for personal computers.

It is now 1984. It appears IBM wants it all. Apple is perceived to be the only hope to offer IBM a run for its money. Dealers, initially welcoming IBM with open arms, now fear an IBM-dominated and -controlled future. They are increasingly turning back to Apple as the only force that can ensure their future freedom.

IBM wants it all and is aiming its guns on its last obstacle to industry control: Apple. Will Big Blue dominate the entire computer industry, the entire information age? Was George Orwell right?"

As the crowd screamed, "No! No! No!," the screen behind Jobs flickered to life with the groundbreaking 1984 commercial (see "Hammer action"). When 1984 had finished playing to the wildly appreciative audience, Jobs solemnly intoned, "There have only been two milestone products so far in our industry. The Apple II in 1977, and the IBM PC in 1981. Today, one year after Lisa, we are introducing the third industry milestone, Macintosh." At that moment, the crowd went wild when a photograph of the Mac appeared on screen.

"Many of us have been working on Macintosh for over two years now, and it has turned out insanely great," boasted Jobs. "Until now, you've just seen some pictures of Macintosh. Now I'd like to show you Macintosh in person." Jobs walked over to a canvas bag sitting on a table and – like a magician pulling a rabbit from a hat – he extracted a Macintosh that began playing Vangelis' score from Chariots of Fire.

After the Macintosh ran through an automatic

1996

January: **Apple demos Mac OS on PPCP platform.** February: **Gil Amelio becomes chairman and CEO of Apple, replacing Spindler. Apple attempts to enter the high-end server market with the Network Server 500 and 700 models. Internet Explorer 2.0, the first Mac version of Microsoft's Web browser, ships.** March: **System 7.5.3 (translucent dragging).** April: **Power Mac 7600, 8200.** July: **Jeff Goldblum uses a PowerBook 5300 to save the Earth from invading aliens in Independence Day.** August: **Apple gets into the multiprocessor game with the dual-180MHz Power Mac 9500. Apple won't release another dual-processor machine for four years. Performa 6400 ships, as does PowerBook 1400 series – featuring removable 'BookCovers'. Apple ends development of Copland and Gershwin.**
November: **Power Mac 4400 ships.**
December: **Desperate for a Copland replacement, Apple buys NeXT and its operating system, NeXTStep for $427 million.**

1997

January: **Steve Jobs returns to Apple as an advisor. Apple unveils plans for a new OS to incorporate NextStep; it's code-named Rhapsody. System 7.6 introduces QuickDraw 3D.** February: **Power Mac 7300, 8600, 9600, PowerBook 3400.** April: **System 7.6.1. Power Mac 6500.**
May: **To mark its 20th anniversary as a company, Apple releases the Twentieth Anniversary Mac (pictured below). It's also the first LCD desktop Mac. Price: £5,759. PowerBook 2400 sub-notebook ships in US and Japan. Apple announces plans to spin off Newton as a wholly owned subsidiary.**
July: **Gil Amelio resigns from Apple.** August: **The satellite image of Bill Gates shares the stage with Steve Jobs, as Microsoft and Apple announce a five-year technology alliance at Macworld Expo Boston. Mac OS 8 ships.**
September: **Steve Jobs becomes interim CEO. In a move to kill off the Mac clone market, Apple buys Power Computing for $100 million.**
November: **Apple ships first PowerPC G3 Power Macs and PowerBook G3.**

OS	7.5.3	7.5.5		7.6	7.6.1	OS 8		
MHz	200MHz			350MHz				
Chips	604					G3		
Boss	Gil Amelio				Steve Jobs			

demonstration of its graphics capabilities, Jobs said, "Today, for the first time ever, I'd like to let the Macintosh speak for itself." With the press of a key, a synthesized voice emerged from the beige box. "Hello. I am Macintosh. It sure is great to get out of that bag. Unaccustomed as I am to public speaking, I'd like to share with you a thought that occurred to me the first time I met an IBM mainframe: Never trust a computer you can't lift. But right now I'd like to sit back and listen. So it is with considerable pride that I introduce a man who has been like a father to me, Steve Jobs."

Not only did the Mac impress the crowd with its voice synthesis, it was considerably smaller, faster, and cheaper than the groundbreaking Lisa introduced the previous year. It had a 68000 microprocessor running at 7.83MHz, 128K of RAM, one 400K, 3.5-inch floppy disk drive, and a nine-inch monochrome display. The Mac came bundled with MacPaint (written by Bill Atkinson), MacWrite (written by Randy Wigginton), and the Finder (written by Bruce Horn and Steve Capps).

Until the last moment before introduction, Apple executives argued over the Mac's price. Jobs had hoped that the Mac could sell for $1,495.

As it turned out, the Mac cost $500 to build (83 per cent materials, 16 per cent overhead, 1 per cent labour), and with Apple's standard markup, the price should have been $1,995. But president John Sculley had ordered an aggressive $15-million, 100-day advertising blitz, which kicked off with the 1984 commercial during Super Bowl XVIII. To pay for this campaign, Sculley tacked on a hefty premium, and the list price for the original Mac was set at $2,495. So much for Raskin's $500 computer that would appeal to the person in the street. The Macintosh was now "the computer for the rest of us," defined as those with several grand burning holes in their pockets.

Even at its artificially inflated price, Jobs predicted Apple would sell 50,000 Macs in the 100 days following introduction, and half a million units by the end of 1984; Sculley's figure was a more realistic quarter million units. Although they were both way off base with their annual forecasts, Apple reached the 100-day goal on Day 73 (April 6), and on Day 100 (May 3); after having sold 72,000 Macs, product marketing manager Barbara Koalkin boasted to USA Today, "We could have sold 200,000 Macintoshes if we could have built them."

Confident that sales would pick up during the Christmas season, Apple began building inventory at a rate of 110,000 units a month. Unfortunately, after the initial burst of sales to early adopters (plus computer dealers, developers, and college students who paid far less than list price thanks to special promotions), Mac sales tapered off dramatically to roughly 20,000 Macs a month. In fact, it took until September 1985 to sell 500,000 Macs, and Apple didn't reach the one million mark until March 1987.

The 20 most influential people in the Mac's history, page 80

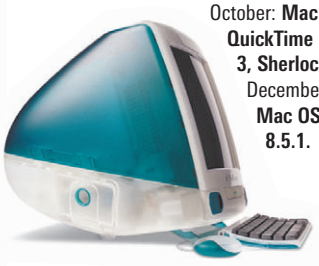
Hammer action

20 years ago, Apple's "1984" TV advert introduced the Macintosh to the world – or rather to viewers of that year's Super Bowl, as it was shown only once nationwide in the US.

For more on this multiple award-winning advert, directed by Gladiator's Sir Ridley Scott, see News, page 27.

1998

January: **Mac OS 8.1 introduces HFS+.** February: **Apple reorganizes Claris into a standalone subsidiary called FileMaker. It also ends any Newton development.** March: **Power Mac G3 All-In-One ships in US.** May: **Apple unveils a revised OS strategy, changing the name of its next-generation OS to OS X. Wall Street PowerBook G3 ships.** June: **Umax pulls out of Mac clone market. Microsoft releases Windows 98.** August: **Apple ships the Bondi Blue 233MHz iMac, starting both the USB and translucent plastic crazes. Price: £999.** October: **Mac OS 8.5 requires PowerPC; QuickTime Pro 3, Sherlock 1.0.** December: **Mac OS 8.5.1.**



1999

January: **The Power Mac G3 becomes the first computer to feature FireWire. Price: £1,069-£2,029. The iMac adds new flavours – blueberry, tangerine, grape, lime, and strawberry, to be exact. In the next few years, Apple's consumer line will go through numerous colour shifts, including indigo, sage, ruby, snow, and, inexplicably, Blue Dalmatian. The Blue-&-White Power Mac G3 sees off the last of the beige.** March: **Mac OS X Server released.** April: **Apple releases Final Cut Pro.** May: **Mac OS 8.6.** June: **Noah Wyle and Anthony Michael Hall recreate the Steve Jobs-Bill Gates contretemps in The Pirates of Silicon Valley.** September: **The iBook, a portable version of the iMac, hits the market in blueberry and tangerine. Price $1,599. The G4 chip becomes the processor for Power Macs at 400MHz. But a shortage of 500MHz chips forces Apple to downgrade the top clock speed of the Power Mac G4 to 450MHz. Price: £1,099-£2,399.** October: **Mac OS 9 ships, introducing multiple users, Keychain, Internet File Sharing, Network Browser. FireWire added to make iMac DV.**

8.1

8.5

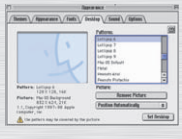
8.5.1

8.6

450MHz

OS 9

500MHz G4



The 20 most influential people in the Mac's history

Often lost in the fanatical adoration of the Macintosh as a high-tech fetish object is the fact that this fantastic box of bits is ultimately a human creation. Over the past 20 years, thousands of people within Apple and in the Mac development community contributed their blood, sweat, and tears to advance the state of the art in computing. Without their hard work, inspiration, and creativity, there would be no Macintosh, and quite possibly, no Apple, either. All of us in the Mac world owe them a debt of gratitude that can never be adequately repaid. Here then, is a tribute to the 20 most influential people in the Mac's history, presented in alphabetical order.

Ended Jobs' exile.

Averted financial disaster

Dr Gilbert Frank Amelio

Public opinion over Gil Amelio is decidedly split. Some feel he did the best he could after inheriting an untenable situation when he replaced Michael Spindler as CEO of Apple in late January 1996. Others believe he was an over-compensated corporate dullard who clashed with Apple's unique freewheeling culture. Regardless of your opinion of Amelio's rocky 17-month tenure at the helm of Apple, his decision to purchase NeXT in December 1996 was instrumental in restoring the company to health if for no other reason that it brought Steve Jobs back to Cupertino after 11 years in exile. Less than seven months later, Amelio was ousted by the board, clearing the way for Jobs to assume control.

Fred D Anderson

Even the most ardent Apple advocate can be forgiven for not knowing the name of Fred Anderson. After all, a behind-the-scenes financial deal doesn't often result in fame and glory, but in this case, it should. Amelio hired Anderson as chief financial officer in March 1996, when Apple was in a death spiral with only a three-month cash supply. In June, Amelio and Anderson pulled off a Wall Street first: they executed a massive convertible debenture offering literally overnight because they simply didn't have the luxury of the typical month-long road show. In one fell swoop, the $661 million from the convertible bond sale solved Apple's liquidity crisis. Need further proof of Anderson's value? He's the only Amelio-era executive still working for Jobs.

Bill Atkinson

While working on the ill-fated Lisa in the early 1980s, Bill Atkinson wrote the QuickDraw routines that handled drawing to the screen. When he joined the original Mac team, Atkinson adapted QuickDraw for the

Wrote seminal programs

2000

January: **Steve Jobs drops the "interim" tag from his CEO title and shows off Mac OS X's Aqua interface in public for the first time.** February: **Graphite iBook Special Edition ships. Power Mac and PowerBook hit 500MHz. Microsoft releases Windows 2000.** August: **The amazingly innovative Power Mac G4 Cube debuts. Price: £1,249-£1,599. It wins awards left, right and centre, but is regarded as far too expensive when coupled with the complementary LCD Apple screens. One day all computers will look like this, but not today.** September: **The public gets its hands on a beta version of Mac OS X, released at Apple Expo Paris. Microsft releases Windows Me. The iBook goes an extraordinary shocking shade of lime green.**

2001

January: **The PowerBook G4 ushers in Apple's shiny metal look. Price: £1,899-£2,499. Apple ships Mac OS 9.1, announces OS X 10.0.0.** February: **Macworld Expo Tokyo stunned by Flower Power and Blue Dalmatian iMacs. Apple premieres DVD-R SuperDrive.** March: **Mac OS X 10.0.0 debuts with memory protection, preemptive multitasking, symmetric multiprocessing, Quartz graphics, Aqua interface, QuickTime 5. Apple gives away free iTools Web services – later to become the no-longer-free .Mac.** May: **12-inch iBook goes all white with new case design.** July: **The G4 Cube becomes Apple's best-looking failure, as the company discontinues production. Mac OS 9.2.** August: **800MHz dual-processor Power Mac G4. Mac OS 9.2.1.** September: **The new operating system gets a needed upgrade with the OS X 10.1 update.** October: **Apple enters the portable music business, unveiling the first iPod music player, with 5GB capacity. Microsoft releases Windows XP.** December: **Mac OS 9.2.2 released – the last-ever non-X version of the Mac OS.**

OS	OS 9		9.1	Mac OS X 10	10.1
MHz	500MHz		733MHz		800MHz
Chips	G4				
Boss	Steve Jobs				

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Mac, and he designed much of the initial Mac user interface. To demonstrate the power of the Mac's simplicity, Atkinson wrote MacPaint, the seminal graphics program. In 1987, Apple released Atkinson's HyperCard, a remarkable database tool that allowed mere mortals to easily program links between graphics and text. Although HyperCard languished after Atkinson left Apple to found General Magic in 1990, the hyperlink concept it introduced was central to the later success of the Web.

Paul Brainerd

In 1985, the Mac was on the verge of slipping into computing history as yet another revolutionary product that was highly praised by not purchased. All that changed when Aldus PageMaker unlocked the potential of Adobe's page-description language, PostScript, which was embedded in Apple's LaserWriter printer. Aldus founder Paul Brainerd originally intended to sell PageMaker as a high-end, vertical product, but Steve Jobs convinced him to target consumers instead. By providing a pro publishing tool at a mass-market price, Aldus revolutionized the printing industry and created the Mac's first killer app: desktop publishing. The DTP revolution made the Mac just as VisiCalc made the Apple II, and it propelled Aldus to a successful public offering and merger with Adobe in September 1994, after which Brainerd resigned.

Steve Capps

One of 15 Xerox Palo Alto Research Center scientists who jumped ship to work on the Lisa at Apple in the early 1980s, Steve Capps was subsequently shanghaied by Steve Jobs in 1983 to help create the Mac. After working on the Mac ROM, Capps teamed up with Bruce Horn to write the Mac's filing system in only six months. Version 1.0 of the Finder was remarkable in that it consumed less than 50K of memory, yet allowed users to easily point and click their way through icons representing documents in folders on disks. Capps left Apple in 1985, started a music company, returned to Cupertino in 1987 to lead the development of the handheld Newton MessagePad, and was eventually named an Apple Fellow in 1994. Capps went on to become Microsoft's user interface architect from 1996 to 2001, and has recently founded his own company, onedoto.

Jean-Louis Gassée

The "Flamboyant Frenchman" was indirectly responsible for both Steve Jobs' original ouster from Apple as well as his eventual return. As vice president of product development, Jean-Louis Gassée learned of Steve Jobs' intention of overthrowing then-CEO John Sculley in 1985. Gassée warned Sculley, who thwarted the coup. Within four months, Jobs resigned to start NeXT. Gassée's star rose along with the sales of the expandable Macintosh II he advocated, and fell when he stood by his premium pricing strategy and the laughably heavy Macintosh Portable. When Sculley passed him over for Spindler, Gassée resigned in 1990. Six years later, after Gassée demanded too high a price for his BeOS, he inadvertently drove a desperate Gil Amelio into Jobs' arms.

William Henry Gates III

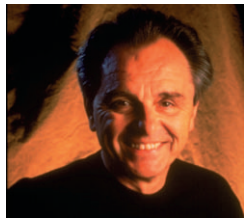
Say what you will about billionaire Bill Gates (and we're sure you will), there's no denying that he is one of the most influential people in the Mac's history. Back when the Macintosh was just a research project, Gates appreciated the importance of the graphical user interface and began the largest Macintosh software development effort outside of Apple. MultiPlan, Word, Excel, and PowerPoint soon dominated the Mac productivity market and Microsoft has remained a dedicated developer through thick and thin. Granted, Gates did sucker Sculley into a 1985 deal that gave Microsoft the legal right to use the Mac look-and-feel in Windows, but that's another story altogether...

Ellen M Hancock

In July 1996, newly installed Apple CEO Gil Amelio (see earlier) hired his National Semiconductor protégé Ellen M Hancock as chief technology officer and executive VP, R&D. For more than two years, Apple had been squandering hundreds of millions of dollars and virtually all of its software engineering resources on Copland, a next-generation operating system. It took Hancock less than a month to see Copland for what it really was: a bloated piece of inferior vaporware. Hancock immediately froze all

continues page 82

Paul Brainerd
Invented desktop publishing



Jean-Louis Gassée
Pushed Steve Jobs out and in

Bill Gates
Published Mac apps (lots of 'em)

Ellen Hancock
Killed Copland

2002

January: **The flat-panel G4 iMac debuts, as Apple pronounces the CRT officially dead. Price: £1,149-£1,599. OS X becomes the default operating system for all new Macs. 14-inch iBook debuts.** April: **To appeal to education customers, Apple announces the eMac, an all-in-one system with a flat CRT monitor. Price: From £729.** May: **Apple makes its first push into the server market since its Network Server product line with the release of the Xserve. It's the first Apple machine to include Double Data Rate (DDR) RAM. Prices from £2,599.** August: **The Power Mac G4 hits the gigahertz mark, and gets a set of shiny mirrored doors. Apple releases its next major OS X update, OS X 10.2, code-named Jaguar: mail, iChat, Address Book, Inkwell, QuickTime 6, Sherlock 3, Quartz Extreme, Rendezvous.** September: **Apple announces OS X-only boot strategy.**

2003

January: **iLife, a suite that includes iPhoto, iDVD, iMovie, and iTunes, debuts, along with Safari, an Apple-built Web browser. Apple claims 5 million active users of OS X. It estimates the number will be double by year's end. Aluminium replaces Titanium for new 12-inch and 17-inch PowerBooks.** April: **Apple makes a splash in the music world with the iTunes Music Store, an online music service where users legally can legally download more than 200,000 songs for as little as 99 cents each.** June: **Mac OS X 10.3 panther unveiled (£99).** August: **IBM's G5 processor debuts in the Power Mac line, topped off by the dual-2GHz Power Mac G5. Price: £2,299.** October: **The latest update to OS X, 10.3 code-named Panther, brings over 150 new features and enhancements to the operating system – including Exposé, iChat Av, Font Book, FileVault and Xcode.**

1GHz — 10.2 — 1.25GHz — 1.42GHz — 10.3 — 2GHz G5

Timeline created by Adelia Cellini, Philip Michaels and Simon Jary. Research aided by Owen Linzmayer's Apple Confidential 2.0.

The most important Macs ever!

Macintosh 128K
Claim to fame: The computer that started it all
Specs: 8MHz 68000, 128Kb RAM, 400Kb Floppy Drive
Price: £2,595.
Life: Jan 1984-Oct 1985

Macintosh II
Claim to fame: The first colour Mac, first NuBus Mac
Specs: 16MHz 68020, 40MB disk (optional), 20MB max RAM
Price: From £3,500.
Life: Mar 1987-Jan 1990

Macintosh Portable
Claim to fame: The first (almost) laptop Mac
Specs: 16MHz 68000, 40MB disk (optional), 8MB max RAM
Price: From £3,995.
Life: Sep 1989-Oct 1991

Macintosh IIfx
Claim to fame: The most expensive Mac ever was "wicked fast"
Specs: 40MHz 68030, 40-160MB disk, 128MB max RAM
Price: From £6,970.
Life: Mar 1990-Apr 1992

PowerBook 100
Claim to fame: The first (really) laptop Mac
Specs: 16MHz 68000, 20-40MB disk, 8MB max RAM
Price: Oct 1991-Aug 1992
Life: £1,375.

Power Mac 6100
Claim to fame: The first PowerPC Mac
Specs: 60MHz 601, 500MB disk, 72MB max RAM
Price: £1,499.
Life: Mar 1994-Oct 1995

Power Mac 9500
Claim to fame: The first PCI-based Mac and the most expandable Mac ever
Specs: 132MHz 604, 2GB disk, 1.5GB max RAM, 6 PCI slots
Price: £4,725.
Life: May 1995-Feb 1997

Twentieth Anniversary Mac
Claim to fame: The first LCD desktop Mac, made for Apple's 20th anniversary – which had taken place the previous year…
Specs: 250MHz 603e, 2GB disk, 256MB max RAM
Price: £5,759.
Life: May 1997-Mar 1998

non-essential Copland development. Her search for an alternative OS culminated in a dramatic technology shoot-out between Jean-Louis Gassée's BeOS and Steve Jobs' OPENSTEP. Despite recommending Apple purchase NeXT, Hancock never enjoyed the respect of Jobs, and she resigned along with Amelio in July 1997. If you are among the millions of users currently enjoying the rock-solid Mac OS X, it's because Hancock had the guts to kill Copland.

Forged Mac ToolBox

Andy Hertzfeld

When Andy Hertzfeld joined Apple in August 1979, he helped create peripherals (including the Silentype thermal printer and the first 80-column card) and system software for the Apple II. Two years later, Steve Jobs literally pulled the plug on his Apple II and drove him to join the Macintosh project, where he designed and implemented a third of the original system software, including the User Interface ToolBox. By placing these tools in the Mac's ROM, Apple made it easy for programmers to adhere to its all-important User Interface Guidelines, thereby ensuring a consistent, familiar look-&-feel for all Macintosh applications. After leaving Apple in 1984, Hertzfeld went on to co-found Radius, General Magic, and Eazel.

Designed innovative Mac models

Jonathan Ive

Perhaps the greatest unsung hero of Apple's recent resurgence is design-guru Jonathan Ive. Born in London in 1967, Ive studied art and design at Newcastle Polytechnic, designed toilets and wash basins, and then created PowerBook concepts as a consultant before joining Apple's Industrial Design Group (IDG) in September 1992. Ive designed the Newton MessagePad 110, the AppleVision 1710 displays, the Twentieth Anniversary Mac, the education-portable eMate, and the MessagePad 2000, but it wasn't until the innovative iMac was released in 1998 that he achieved celebrity status. The iMac's rounded, translucent, candy-coloured case proved irresistible to consumers and helped turn around Apple's fortunes. As vice-president of IDG, Ive has led the creation of a whole family of visually stunning products, including the iBook, flat-panel iMac, iPod, PowerBook G4, Cube, and Power Mac G5 tower.

Founded and saved Apple

Steven Paul Jobs

In 1979, Steve Jobs attempted unsuccessfully to kill Jef Raskin's Macintosh project in its infancy, but Apple's board of directors won the day. Two years later, Jobs had been kicked off the Lisa team, so he took over the Mac project to prove his merit. Using his unequalled personal charisma (dubbed the "Reality Distortion Field") and unorthodox motivational techniques, Jobs pushed his team to extraordinary lengths to produce the Mac in 1984. The 128K Mac was so incredible that had Jobs never done anything else, his legend was assured. But he went on to pull off more impressive feats. After resigning from Apple in 1985, he founded NeXT and funded Pixar. In 1996, an ailing Apple paid $427m for NeXT. Within a year, Jobs was named interim CEO, and soon returned the company to profitability through innovation of the venerable Mac line.

Power Computing: clone king

Stephen S. Kahng

Many pundits believe Apple would be the Microsoft of today had it licensed the Mac way back when. None other than Bill Gates proposed such a scheme in 1985, but Apple stuck by its proprietary strategy until the early 1990s, when CEO Michael Spindler finally decided to allow Mac clones. Trouble was, none of the marquee companies Apple wanted as partners would have anything to do with it. Power Computing, led by Stephen "King" Kahng, stepped into the breach in December 1994 as the world's first Mac licensee. Kahng's engineers embarrassed a complacent Apple by quickly shipping high-end clones that were cheaper and faster than Apple's Macs. Power Computing was so successful that by the time Steve Jobs took charge of Apple, he felt it was a threat, so he purchased the clone company in September 1997, effectively ending Apple's late licensing experiment.

Created Mac icons and fonts

Susan Kare

Anyone who has touched a graphical user interface computer in the last 20 years has unknowingly encountered the work of artist Susan Kare. Roped into the Macintosh project in 1983 by high-school friend Andy Hertzfeld, Kare had to come up with instantly understandable visual metaphors for computer commands, then depict these in icons created by toggling black-&-white pixels in a tiny grid. In addition to creating the Mac's wristwatch, Trash, bomb, and diskette icons, Kare also designed all of the original Mac bit-mapped fonts except Venice. Kare followed Steve Jobs to NeXT in 1986, and has subsequently designed buttons, icons, and screen images for Microsoft's Windows 3.0 and IBM's OS/2, among many other products.

Evangelized "The Mac Way"

Guy Kawasaki

No matter how great the original 128K Macintosh was, Apple rightly realized that to make inroads against IBM's PC, there had to be plenty of Mac programs and peripherals available from third-party developers. The man faced with the daunting task of convincing, cajoling, and coercing Mac development was the charismatic Guy Kawasaki, Apple's original Software Evangelist. Kawasaki was so successful as the pied piper of programmers that for many years all the most innovative products came out first on the Macintosh, despite its relatively small market share. After leaving Apple, Kawasaki wrote several books and was CEO of both ACIUS and Fog City Software. He returned as an Apple Fellow during Gil Amelio's tenure. During Apple's darkest days, Kawasaki launched EvangeList, a mailing list that could mobilize 44,000 enthusiastic Mac subscribers on a moment's notice. Kawasaki used his bully pulpit to promote the products of loyal Mac developers and keep business and technology journalists from unfairly criticizing Apple.

Jeffrey Frank Raskin

It's been said that success has many fathers, but there is one man who can rightfully claim to be the true father of the Macintosh. Jef Raskin started as manager of the

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Created Mac icons and fonts

publications department when he joined Apple as employee #31 in 1978. By the following year, he was designing a radically new kind of computer, focusing on human factors, not technical specifications. Raskin was a frequent visitor to XeroxPARC, where he marvelled at what its researchers and engineers were doing (see page 74). Raskin's Macintosh project was designed for the "person in the street" who wanted to use a computer to accomplish a task but didn't want to be bothered learning about computers per se. Steve Jobs initially hated Raskin's proposal, but after he was kicked off the Lisa team, Jobs joined and then took over Raskin's Macintosh project and turned it into a full-fledged product-development effort. Raskin resigned. Granted, the Mac that shipped in 1984 differed greatly from Raskin's prototypes, but the underlying goal of elegant simplicity was retained and became the hallmark of all Apple products.

Managed meteoric growth

John Sculley

Steve Jobs enticed John Sculley to leave Pepsi by claiming that as Apple's CEO he would have an opportunity to change the world, not just sell sugared water to kids. It would be stretching the truth to assert that John Sculley personally dented the universe, but he absolutely altered Apple Computer. When Sculley took charge in 1983, Apple had net sales of $600 million, mostly from the ageing Apple II line. Sculley managed the transition to the Mac, ousted a beloved founder, expanded the product line and opened up the architecture, tripled headcount, and turned in ten profitable years. When Sculley resigned in 1993, annual sales topped $8 billion (compared to $6.21 billion for 2003), giving the company the momentum it needed to survive the rough road ahead. Sculley is perhaps most famous for his championing of the Newton handheld PDA.

Produced poetry in digital design

Burrell Smith

Because he lacked an engineering degree, initially the only job Burrell Smith could land at Apple was in the repair department. But star programmer Bill Atkinson saw promise in Smith and introduced him to Jef Raskin, who told the young man of his plans for a computer he called Macintosh. Smith quickly whipped together a prototype, and a duly impressed Raskin invited Smith to become the second member of the Macintosh project. Much as Steve Wozniak single-handedly created the bulk of the Apple II, Smith worked magic on the digital electronics design of the Macintosh, from prototype to finished product. Take a look at an early Mac motherboard and you'll see an object of unequaled beauty, from its efficient use of chips to the clean printed circuit lines running between components.

Michael H Spindler

No doubt German-born Michael Spindler was dealt a bad hand when he took over as Apple CEO from John Sculley in 1993. Secret merger talks with telecoms giant AT&T had just broken down, Sculley's Newton MessagePad would soon prove an expensive disappointment, and Apple's user-interface "look-&-feel" lawsuit against Microsoft would soon be dismissed, crushing Spindler's hopes of blunting Windows' momentum. In a bid to regain all the lost PC market share, Michael Spindler half-heartedly relented to Mac licensing in 1994, and directed product development to churn out a bewildering array of over 130 Mac models during the less than three years he led the company. It was a nightmare; differentiating between models was confusing for consumers, keeping pace with the introductions was difficult for developers, and forecasting inventory needs and sales was impossible for Apple. Jobs clearly learned from Spindler's mistake, reducing Apple's current product line to a simple matrix comprised of consumer and professional models of desktop and portable computers.

Confused consumers

Managed major Mac OS releases

Avadis Tevanian Jr, Ph.D.

When Apple bought NeXT in 1996, in addition to some great technology and Steve Jobs, it also absorbed Jobs' hand-picked NeXT staff. Within months, many of Apple's executives found themselves replaced by NeXT alumni. Avie Tevanian Jr, formerly NeXT's VP of engineering, became Apple's senior VP of Software Engineering in February 1997. Although the process took longer than Apple originally promised, Tevanian managed to actually ship a next-generation Unix-based operating system, something that his predecessors failed to do since 1994. That accomplishment is even more remarkable when you remember that during the gestation period of Mac OS X, Apple also shipped major releases (Mac OS 8 through OS 9.2.2) of its traditional operating system. And if all that wasn't enough, Tevanian has kept Apple engineers busy releasing substantial upgrades (Puma, Jaguar, and Panther) to Mac OS X three years running.

Established human interface guidelines

Bruce Tognazzini

One of the reasons the Mac remains so popular is its legendary ease of use, but as Windows demonstrates, that takes more than just slapping a mouse onto a computer with a graphical user interface. A lot of thought went into determining the best ways to accomplish tasks, the ideal placements of buttons, the correct names of menus, etc. That effort was led by Bruce Tognazzini, who became employee #66 when he joined Apple in 1978. Over his 14-year career at the company, "Tog," as he is affectionately known, founded the Apple Human Interface Group that codified the rules of designing software "the Macintosh way." Just as importantly, Tog acted as Apple's Human Interface Evangelist to spread the word and ensure compliance among Macintosh developers so that applications were consistent in overall appearance and operation.

Owen W Linzmayer (owenink@owenink.com) **is the San Francisco-based author of Apple Confidential 2.0: The Definitive History of the World's Most Colorful Company, recently published by No Starch Press. Visit** www.owenink.com **to order a signed copy of the second edition of the book.**

iMac
Claim to fame: The Mac that saved Apple, started the USB and translucent plastic crazes
Specs: 233MHz G3, 4GB disk, 256MB max RAM
Price: £999.
Life: Aug 1998-Jan 1999

Power Mac G3 ("Blue & White")
Claim to fame: The first FireWire Mac, the most colourful Pro Mac ever
Specs: 300/350/400MHz G3, 6-12GB disk, 1GB max RAM
Price: £1,069-£2,029.
Life: Jan 1999-Sep 1999

iBook
Claim to fame: Behold, the portable iMac
Specs: 300 MHz G3, 3.2GB disk, 288MB max RAM
Price: £1,299.
Life: Sep 1999-Sep 2000

Power Mac G4
Claim to fame: first G4 Mac, the only Mac to have been reverse-speedbumped.
Specs: 400-500MHz (originally), 350-450 MHz (a few months later) G4, 10-20GB disk, 2GB max RAM
Price: £1,099-£2,399.
Life: Sep 1999-July 2000

Power Mac G4 Cube
Claim to fame: Easily the best-looking Apple failure
Specs: 450/500MHz G4, 20/30GB disk, 1.5GB max RAM
Price: £1,249-£1,599.
Life: August 2000-July 2001

PowerBook G4
Claim to fame: The first G4 PowerBook, the beginning of Apple's current shiny metal fetish
Specs: 400/500 MHz G4, 10/20GB disk, 1GB max RAM
Price: £1,899-£2,499.
Life: Jan 2001-Oct 2001

The iMac (Flat-Panel)
Claim to fame: "The CRT is officially dead."
Specs: 700/800MHz G4, 20-60GB disk, 1GB max RAM
Price: £1,149-£1,599.
Life: Jan 2002-Jan 2003

Power Mac G5
Claim to fame: First G5 Mac
Specs: 1.6Hz -Dual 2GHz G5, 80-160GB disk, 8GB max RAM
Price: £1,549-£2,299.
Life: June 2003-

Compiled by Glen D. Sanford of www.apple-history.com

Mac Trumps

Play the tech-spec card game that's gripping Macworld

Now you can pit the original Mac (1984's Mac 128K) against today's killer Power Mac G5 – and win! Older Macs will nearly always beat Apple's current range with their higher prices, but will be creamed by our current gigahertz processor speeds and memory capacities.

The rules: First shuffle the deck. Then deal each player his or her cards face down. Players should hold their cards so that they see the top card only. Pick an item from the top card (for example, Maximum RAM) and read it out ("Maximum RAM, 640MB"). The other players then read out their values for the same item. The person with the highest score wins, and collects all the losing top cards from the other players. These are then placed at the bottom of his or her pile. The winner then chooses an item from their next card.

If two or more cards share the same top score, all the cards are placed in the middle of the table, and the same player chooses again from the next visible card. The winner of that contest then wins all those cards and the ones from the table. The player with all the cards at the end of the game is the winner.

May the best Mac win!

Macintosh 128K

Start: January 1984 Stop: October 1985

Processor speed:	8MHz
Bus speed:	8MHz
Maximum RAM:	128K
Power:	60W
Height:	13.6"
Weight:	16.5lbs
Price:	£2,595

Macworld Mac Trumps

Processor: 68000
Minimum OS: System 1.0
Maximum OS: System 6.0.8

84 Annie

Macintosh II

Start: March 1987 Stop: January 1990

Processor speed:	16MHz
Bus speed:	16MHz
Maximum RAM:	20MB
Power:	230W
Height:	5.5"
Weight:	24lbs
Price:	£3,500

Macworld Mac Trumps

Processor: 68020
Minimum OS: System 2.0
Maximum OS: System 7.5.5

87 Uzi, Becks

Macintosh IIsi

Start: October 1990 Stop: March 1993

Processor speed:	20MHz
Bus speed:	20MHz
Maximum RAM:	65MB
Power:	160W
Height:	4"
Weight:	19lbs
Price:	£2,530

Macworld Mac Trumps

Processor: 68030
Minimum OS: System 7.0.1
Maximum OS: System 7.6.1

90 Ray Ban

Apple Portable

Start: September 1989 Stop: October 1991

Processor speed:	16MHz
Bus speed:	16MHz
Maximum RAM:	8MB
Power:	5W
Height:	4.05"
Weight:	15.8lbs
Price:	£3,995

Macworld Mac Trumps

Processor: 68000
Minimum OS: System 6.04
Maximum OS: System 7.5.5

89 Riveria

Performa 5200

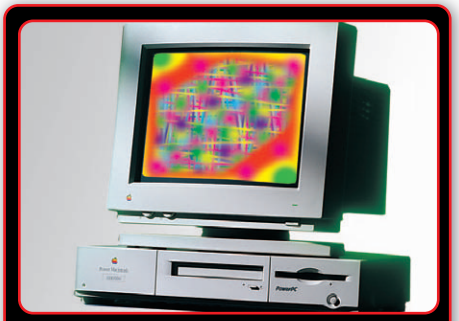
Start: April 1995 Stop: April 1996

Processor speed:	75MHz
Bus speed:	37.5MHz
Maximum RAM:	64MB
Power:	125W
Height:	17.5"
Weight:	47lbs
Price:	£1,526

Macworld Mac Trumps

Processor: PowerPC 603
Minimum OS: System 7.5.1
Maximum OS: Mac OS 9.1

95 Bongo



Power Macintosh 6100

Start: March 1994 Stop: October 1995

Processor speed:	60MHz
Bus speed:	30MHz
Maximum RAM:	72MB
Power:	210W
Height:	3.4"
Weight:	14lbs
Price:	£1,499

Macworld Mac Trumps

Processor: PowerPC 601
Minimum OS: System 7.1.2
Maximum OS: Mac OS 9.1

94 Piltdown

Macworld.co.uk Search Macworld's Reviews database online (**www.macworld.co.uk**), updated throughout the month

Power Macintosh 7100

Start: March 1994 Stop: January 1996

Processor speed:	66MHz
Bus speed:	33MHz
Maximum RAM:	136MB
Power:	230W
Height:	6"
Weight:	25lbs
Price:	£2,465

Macworld Mac Trumps

Processor: PowerPC 601
Minimum OS: System 7.1.2
Maximum OS: Mac OS 9.1

94 Carl Sagan

Power Macintosh 7500

Start: May 1995 Stop: May 1996

Processor speed:	100MHz
Bus speed:	50MHz
Maximum RAM:	1GB
Power:	150W
Height:	6.15"
Weight:	22lbs
Price:	£2,145

Macworld Mac Trumps

Processor: PowerPC 601+
Minimum OS: System 7.5.2
Maximum OS: Mac OS 9.1

95 TNT

Power Macintosh 8200

Start: April 1996 Stop: Mid 1997

Processor speed:	100MHz
Bus speed:	40MHz
Maximum RAM:	512MB
Power:	150W
Height:	14"
Weight:	25lb
Price:	£1,769

Macworld Mac Trumps

Processor: PowerPC 601
Minimum OS: System 7.5.3
Maximum OS: Mac OS 9.1

96 1984-2004

Power Macintosh 8500

Start: May 1995 Stop: Early 1997

Processor speed:	120MHz
Bus speed:	45MHz
Maximum RAM:	1GB
Power:	225W
Height:	14.9"
Weight:	25lbs
Price:	£2,879

Macworld Mac Trumps

Processor: PowerPC 604
Minimum OS: System 7.5.2
Maximum OS: Mac OS 9.1

95 Nitro

Power Macintosh G3 Desktop

Start: November 1997 Stop: January 1999

Processor speed:	233MHz
Bus speed:	66MHz
Maximum RAM:	768MB
Power:	150W
Height:	15.2"
Weight:	33.1lbs
Price:	£2,079

Macworld Mac Trumps

Processor: PowerPC G3
Minimum OS: Mac OS 8
Maximum OS: OS X 10.3

97 Gossamer

iMac DV+

Start: July 2000 Stop: February 2001

Processor speed:	450MHz
Bus speed:	100MHz
Maximum RAM:	1GB
Power:	150W
Height:	15"
Weight:	40lbs
Price:	£999

Macworld Mac Trumps

Processor: PowerPC G3
Minimum OS: Mac OS 9.0.4
Maximum OS: OS X 10.3

00 1984-2004

PowerBook G3

Start: May 1998 Stop: August 1998

Processor speed:	233MHz
Bus speed:	83MHz
Maximum RAM:	192MB
Power:	45W
Height:	2"
Weight:	7.5lbs
Price:	£4,165

Macworld Mac Trumps

Processor: PowerPC G3
Minimum OS: Mac OS 8.1
Maximum OS: OS X 10.3

98 Wall Street

Power Mac G3 All-in-one

Start: March 1998 Stop: September 1998

Processor speed:	233MHz
Bus speed:	66MHz
Maximum RAM:	768MB
Power:	150W
Height:	19.92"
Weight:	59.5lbs
Price:	£949

Macworld Mac Trumps

Processor: PowerPC G3
Minimum OS: Mac OS 8
Maximum OS: OS X 10.3

98 Artemis

iBook G3

Start: May 2001 Stop: October 2001

Processor speed:	500MHz
Bus speed:	66MHz
Maximum RAM:	640MB
Power:	45W
Height:	1.35"
Weight:	4.9lbs
Price:	£935

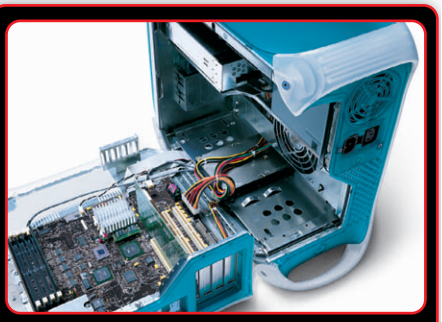
Macworld Mac Trumps

Processor: PowerPC G3
Minimum OS: Mac OS 9.1
Maximum OS: OS X 10.3

01 1984-2004

Specifications and prices are generally taken from the first, entry-level model. Termination date is for the end of that line, but later similar models often exist. Not all codenames are known.

continues page 87



Power Macintosh G3 (B&W)

Start: January 1999 Stop: September 1999

Processor speed:	300MHz
Bus speed:	100MHz
Maximum RAM:	1GB
Power:	200W
Height:	17"
Weight:	28.7lbs
Price:	£1,069

Macworld Mac Trumps 99 Yosemite

Processor: PowerPC G3
Minimum OS: Mac OS 8.5.1
Maximum OS: OS X 10.3

iMac

Start: August 1998 Stop: January 1999

Processor speed:	233MHz
Bus speed:	66MHz
Maximum RAM:	256MB
Power:	80W
Height:	15.8"
Weight:	40lbs
Price:	£999

Macworld Mac Trumps 98 Columbus

Processor: PowerPC G3
Minimum OS: Mac OS 8.1
Maximum OS: OS X 10.3

PowerBook 5300

Start: August 1995 Stop: Late 1996

Processor speed:	100MHz
Bus speed:	33.3MHz
Maximum RAM:	64MB
Power:	45W
Height:	2.2"
Weight:	6.2lbs
Price:	£1,799

Macworld Mac Trumps 95 M2

Processor: PowerPC 603e
Minimum OS: System 7.5.2
Maximum OS: Mac OS 9.1

PowerBook 150

Start: July 1994 Stop: October 1995

Processor speed:	33MHz
Bus speed:	33MHz
Maximum RAM:	36MB
Power:	17W
Height:	2.25"
Weight:	5.8lbs
Price:	£939

Macworld Mac Trumps 94 JeDI

Processor: 68030
Minimum OS: System 7.1.1
Maximum OS: System 7.6.1

Power Macintosh G3 Tower

Start: November 1997 Stop: January 1999

Processor speed:	233MHz
Bus speed:	66MHz
Maximum RAM:	768MB
Power:	150W
Height:	15.2"
Weight:	33.1lbs
Price:	£2,590

Macworld Mac Trumps 97 Gossamer

Processor: PowerPC G3
Minimum OS: Mac OS 8
Maximum OS: OS X 10.3

Performa 630

Start: July 1994 Stop: October 1995

Processor speed:	33MHz
Bus speed:	33MHz
Maximum RAM:	36MB
Power:	45W
Height:	4.3"
Weight:	19lbs
Price:	£889

Macworld Mac Trumps 94 Crusader

Processor: 68040
Minimum OS: System 7.1.2
Maximum OS: Mac OS 8.1

PowerBook 165c

Start: February 1993 Stop: December 1993

Processor speed:	33MHz
Bus speed:	33MHz
Maximum RAM:	14MB
Power:	17W
Height:	2.25"
Weight:	6.8lbs
Price:	£3,285

Macworld Mac Trumps 93 Monet

Processor: 68030
Minimum OS: System 7.1
Maximum OS: System 7.6.1

20th Anniversary Mac

Start: May 1997 Stop: March 1998

Processor speed:	250MHz
Bus speed:	50MHz
Maximum RAM:	256MB
Power:	140W
Height:	17.25"
Weight:	14.9lbs
Price:	£5,759

Macworld Mac Trumps 97 Spartacus

Processor: PowerPC 603ev
Minimum OS: System 7.6.1
Maximum OS: Mac OS 9.1

Performa 6400

Start: August 1996 Stop: Mid 1997

Processor speed:	40MHz
Bus speed:	40MHz
Maximum RAM:	136MB
Power:	220W
Height:	16"
Weight:	44.5lbs
Price:	£1,733

Macworld Mac Trumps 96 Elixer

Processor: PowerPC 603ev
Minimum OS: System 7.5.3
Maximum OS: Mac OS 9.1

continues page 89

PowerBook Duo 280c

Start: April 1994 Stop: January 1996

Processor speed:	33MHz
Bus speed:	33MHz
Maximum RAM:	40MB
Power:	25W
Height:	1.5"
Weight:	4.8lbs
Price:	£2,819

Macworld Mac Trumps

Processor: 68040
Minimum OS: System 7.1.1
Maximum OS: Mac OS 8.1

94 Yeager

PowerBook 540c

Start: May 1994 Stop: August 1995

Processor speed:	33MHz
Bus speed:	33MHz
Maximum RAM:	36MB
Power:	40W
Height:	2.3"
Weight:	7.1lbs
Price:	£3,525

Macworld Mac Trumps

Processor: 68040
Minimum OS: System 7.1.1
Maximum OS: Mac OS 8.1

94 Blackbird

PowerBook G4 Titanium

Start: January 2001 Stop: October 2001

Processor speed:	400MHz
Bus speed:	100MHz
Maximum RAM:	1GB
Power:	50W
Height:	1"
Weight:	5.3lbs
Price:	£2,230

Macworld Mac Trumps

Processor: PowerPC G4
Minimum OS: Mac OS 9.1
Maximum OS: OS X 10.3

01 Mercury

Power Macintosh G4 Graphite

Start: September 1999 Stop: July 2000

Processor speed:	450MHz
Bus speed:	100MHz
Maximum RAM:	2GB
Power:	200W
Height:	17"
Weight:	28.7lbs
Price:	£1,099

Macworld Mac Trumps

Processor: PowerPC G4
Minimum OS: Mac OS 8.5.1
Maximum OS: OS X 10.3

99 Sawtooth

Power Macintosh G5

Start: June 2003 Stop:

Processor speed:	2 x 2GHz
Bus speed:	1000MHz
Maximum RAM:	8GB
Power:	700W
Height:	20.1"
Weight:	39.2lbs
Price:	£2,299

Macworld Mac Trumps

Processor: PowerPC G5
Minimum OS: OS X 10.2.7
Maximum OS: OS X 10.3

03 1984-2004

Power Mac G4 Quicksilver

Start: January 2002 Stop: July 2002

Processor speed:	800MHz
Bus speed:	133MHz
Maximum RAM:	1.5GB
Power:	338W
Height:	17"
Weight:	30lbs
Price:	£1,350

Macworld Mac Trumps

Processor: PowerPC G4
Minimum OS: Mac OS 9.2.2
Maximum OS: OS X 10.3

02 Quicksilver

Power Macintosh G4 Cube

Start: August 2000 Stop: July 2001

Processor speed:	450MHz
Bus speed:	100MHz
Maximum RAM:	1.5GB
Power:	200W
Height:	10"
Weight:	28.7lbs
Price:	£1,249

Macworld Mac Trumps

Processor: PowerPC G4
Minimum OS: Mac OS 9.0.4
Maximum OS: OS X 10.3

00 Trinity

PowerBook G4 Aluminium 15"

Start: September 2003 Stop:

Processor speed:	1GHz
Bus speed:	166MHz
Maximum RAM:	2GB
Power:	65W
Height:	1.1"
Weight:	5.6lbs
Price:	£1,599

Macworld Mac Trumps

Processor: PowerPC G4
Minimum OS: OS X 10.2.7
Maximum OS: OS X 10.3

03 1984-2004

eMac

Start: April 2002 Stop: May 2003

Processor speed:	700MHz
Bus speed:	100MHz
Maximum RAM:	1GB
Power:	170W
Height:	15.8"
Weight:	50lbs
Price:	£729

Macworld Mac Trumps

Processor: PowerPC G4
Minimum OS: Mac OS 9.2.2
Maximum OS: OS X 10.3

02 1984-2004

LOWE'S
GOODYEAR
MOOG
CLEVITE

Game on...

Macworld's Game Hall of Fame 2003. By Peter Cohen

Once again it's time to open the doors of the Macworld Game Hall of Fame. As I walk through the halls, polishing fingerprints off of the brass statues of past inductees and making room for the newest crop of winners, I can't help but look back on the past year with fondness. Sure, there were a few titles that made me want to give up my joystick forever – I won't name any names. But after all is said and done, 2003 shaped up to be another solid year for games on the Mac. Here are our inductees for this year's Game Hall of Fame.

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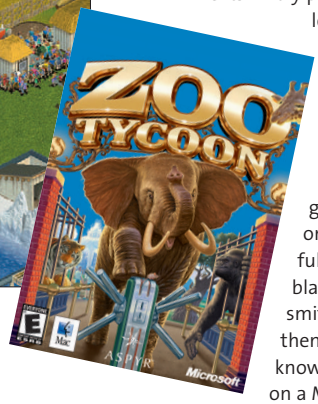


Animal magic

If you want to build a serious zoo, or simply watch animals run amuck, Zoo Tycoon is the game for you.

Best use of husbandry

Zoo Tycoon

★★★★/8.0

This real-time strategy game, which lets players build, stock, and maintain their own zoo, emerged mid-year and quickly became one of our favourites – thanks in part to a feature that lets you knock down the walls of zoo exhibits. Nothing releases a little pent-up aggression like watching your lions and tigers eat demanding zoo patrons.

Zoo Tycoon combines the voyeuristic thrill and strategic planning of Sim City with a nice dose of learning. As you build your zoo, you'll learn about the animals' natural habitats and what they need to keep happy and healthy. Do the job well, and you'll make the park a fun place for patrons to spend money – and perhaps earn a small fortune. Do it poorly, and your zoo may be shut down for animal cruelty.

What's cool:

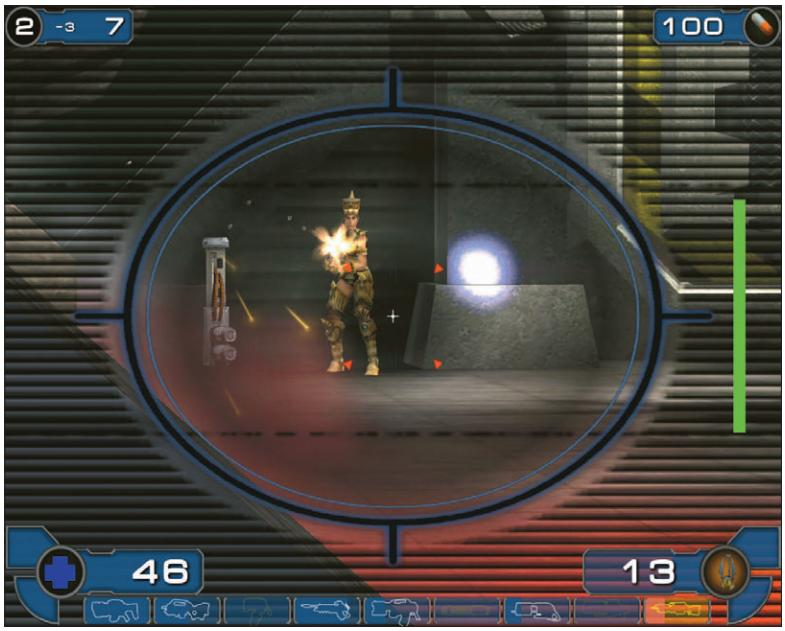
A recently released Marine Mania expansion pack lets you add oceanic critters and dinosaurs to the mix.

Who it's for:

Any would-be Jonny Morris or strategy-game fans who'd like to run their own wildlife safari.

From:

Softline, 01883 745 111; £39.99.



Best way to kick PC-gamers' butts

Unreal Tournament 2003

★★★★/8.5

MacSoft sure took its sweet time getting Unreal Tournament 2003 (UT 2K3) into the hands of Mac gamers, but the wait was worth it. Chock full of death and dismemberment, this unapologetically aggro first-person shooter is brimming with mayhem.

Like its wildly popular predecessor, UT 2K3 lets you wield a variety of weapons as you participate in futuristic gladiatorial combat. But this time around, the graphics are better, the action is faster, and the contestants are tougher.

The best part of this game, of course, is playing online against a server full of PC gamers, blasting them to smithereens, and then letting them know you're playing on a Mac.

What's cool:

Hacking the game's INI file to maximize performance on your Mac – for example, you can reduce the number of active audio channels (see our October 2003 issue for details).

Who it's for:

The Gatorade-swilling crowd.

From:

Softline, 01883 745 111; £39.99.

Best unpronounceable game

Noiz2sa

★★★★/8.0

Having grown up on a hearty diet of classic arcade games, I'd happily trade in my 3D graphics for a good 2D shoot 'em up (or 'shmup' in gamers' parlance) almost any day of the week. So game developer Kenta Cho has a special place in our hearts for distilling classic 2D shooters down to their very core and turning them into wonderful, abstract, psychedelic – and just plain weird – games. Noiz2sa is a perfect example.

A follow-up to Cho's earlier rRootage, Noiz2sa has players flying over a scrolling landscape and firing at everything. The game eschews coluorful, cartoonish graphics for a minimalist presentation with an allure all its own: ships, bullets, missiles, and laser beams are all represented by simple geometric shapes. Once the bullets start flying, you'll be hypnotized the action. Put simply, Noiz2sa is a visual extravaganza in motion. You have to see it to believe it.

What's cool:

People at Starbucks tapping you on the shoulder while you're playing Noiz2sa and begging for details about where to find the game.

Who it's for:

People who have a library of console shmups and wish there were more of these games on the Mac.

From:

Kenta Cho, **www.victoly.com/~adam**; free.

Best celebrity endorsement

Tiger Woods PGA Tour 2003

★★★★/8.5

Spectacularly rendered golf courses and stunningly realistic character animation alone aren't what earn this Mac golf title a spot in the Game Hall of Fame.

That credit belongs to TrueSwing – an intuitive swing-control system that really puts players in the game. The visages of Tiger Woods and other well-known PGA golfers are icing on the cake.

Tiger Woods PGA Tour 2003 features a Career mode that lets you move up the rungs of the PGA ladder. Other PGA golfers will even challenge you to games of skill that will test your mettle and put money in your pocket – if you win.

The second of two major golf games reviewed by Macworld this past year, Tiger Woods was truly the superior game – notwithstanding a few graphical glitches on certain Mac configurations. In fact, it looks better, plays better, and offers more challenges than any Mac golf game we can think of.

What's cool:

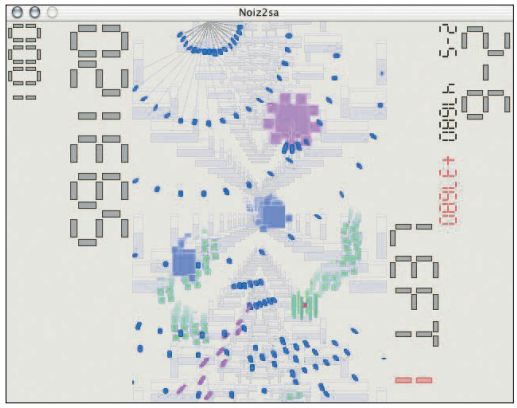
Watching Tiger get more and more frustrated as he keeps duffing easy shots.

Who it's for:

People who took that "I am Tiger Woods" commercial seriously.

From:

Softline, 01883 745 111; £39.99.



Kaboom! (Left)

Noiz2sa is as addictive as it is simple – if it moves, shoot it. If it doesn't, shoot it anyway.

Best game and controller combination

NASCAR Racing 2003 Season, and Logitech MOMO Racing Wheel

★★★★/8.8; ★★★★/8.2

For some games, it doesn't matter whether you use the keyboard or a game controller – the experience is about the same. But for others, the difference is night and day. NASCAR Racing 2003 Season is such a game. It's also the swan song of a terrific game franchise that carefully simulates what it's like to muscle a roaring NASCAR racing vehicle around real-world tracks.

People unfamiliar with the sport may not see much challenge in NASCAR driving – after all, you're just taking left turns continuously, right? No, not by a long shot. Riding in bumper to bumper traffic on the freeway is one thing, but at 190 miles per hour, it's a whole different story. Careful fuel management, listening to cues from your pit crews, and keeping an eye on your gauges and other drivers all add up to a nail-biting experience that won't let you look away from the screen for even a moment – unless you want to end up as roadkill.

NASCAR Racing 2003 Season earns extra points over its 2002 Season predecessor, thanks to an updated driver, a team and sponsor roster, all 23 real-world NASCAR tracks, and a dramatically reworked physics engine. These features, along with new graphics and AI improvements, make the game even more realistic and challenging than before.

But to really experience the true power of this game, you'll need Logitech's Momo Racing Wheel. NASCAR's new support for force feedback brings a completely different level of realism to the game by making the wheel shimmy and shake as you plow your souped-up sled at ridiculous speeds around the track.

What's cool:

Being able to take a U-turn out of pit row and ploughing your car into oncoming traffic just to watch the other cars flip over and burst into smoke and flame, and then replaying the chaos from different angles.

Who it's for:

Jeff Gordon wannabes.

From:

Softline, 01883 745 111; £34.99.

Logitech, **www.logitech.com**; £89.99.

continues page 95

Best use of the Force

Jedi Knight II: Jedi Outcast

★★★★/8.6

The Star Wars and Star Trek movie franchises have both fallen victim to a wealth of mediocre – and at times, utterly craptastic – games. But not so with Aspyr Media's Mac conversion of Jedi Knight II: Jedi Outcast. Based on the Quake III: Arena engine, Jedi Knight II lets you control Kyle Katarn, a Jedi bad boy who's turned to mercenary work to keep food on the table.

Although Jedi Knight II uses a few tricks we've seen before – Max Payne's Bullet Time slow-motion mode, for example – it uses them in ways that don't feel hackneyed or, pardon the pun, forced. Best of all, when you tire of the single-player mode, you can enter online arenas and pit your skills against other Mac and PC players.

What's cool:

Getting to slice and dice with a lightsaber.

Who it's for:

People who wish that Darth Vader was their father.

From:

Softline, 01883 745 111; £39.99.

Best military training

Tom Clancy's Ghost Recon: Desert Siege

★★★★/8.4

Squad-based military games are odd ducks: they aren't quite action games, and they aren't quite strategy games. They are, however, incredibly challenging and complex simulations of real-life military exercises. And this year, Aspyr brought an outstanding example of this genre to the Mac.

In Tom Clancy's Ghost Recon, you're in charge of a team of elite commandos called Ghosts. With each mission, you must complete a series of objectives and get your team out alive. There are secondary goals, too, which will raise your status as a covert ops hero if completed in time. Although the game is set in the future, the weapons and situations – such as quelling East African unrest or putting an end to an uprising in Russia – are definitely current.

Ghost Recon gives you more action and requires less planning than past Tom Clancy games, so there's a quicker payoff for the attention-deprived player. Improved graphics and realistic sound effects add to the sense of immersion. (The game even has samples of birdsongs from the areas you visit.) And kudos to Aspyr for bundling both the original Ghost Recon game and its expansion pack, Desert Shield, together in this combo.

What's cool:

Taking over a fellow commando's body to get the job done.

Who it's for:

Folks who'd rather be *in* Tom Clancy thrillers than read them.

From:

Softline, 01883 745 111; £39.99.

continues page 96

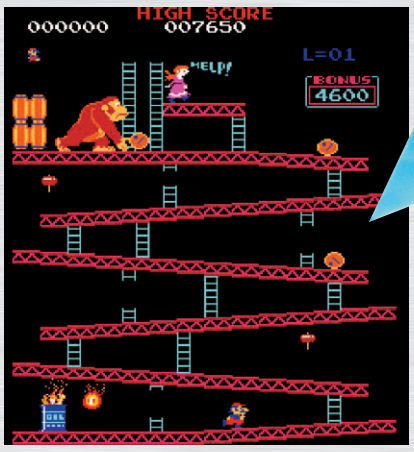
Best place to get classic games

In 2003 we reviewed MacMAME (Mac Multiple Arcade Machine Emulator, **www.macmame.org**), a free emulator that revives classic arcade machines from the 70s, 80s, and 90s on your Mac – much in the same way that VirtualPC emulates a Windows-compatible computer. But although MacMAME emulates the technology underlying arcade games, it doesn't actually include the games themselves. For that, you need ROM image files culled from the arcade game's original chips.

Until recently, MacMAME users who wanted to get these ROM files had two options: Buy the original arcade games and use Byzantine equipment to read the data; or download ROM files from the Internet via pirate Web sites and peer-to-peer services. The former is a daunting, time-consuming, and expensive process, while the latter is an easier and cheaper, but more legally precarious, approach.

But now a company has stepped in to give gamers legal and easy access to game ROMs. Based on the same concept as Apple's iTunes Music Store, StarROMs. (**www.starroms.com**) sells vintage arcade game ROMs that work with MacMAME and its kin. The company kicked off last October with dozens of ROMs from classic Atari arcade games such as Missile Command, Tempest, Asteroids, and others.

As we went to press, the selection on StarROMs' Web site was limited to Atari games. However, with dozens of classics to choose from, there should be enough to keep even the most ardent arcade enthusiast busy for hours. The company says it plans to flesh out its selection once deals with other licence holders are finalized.



ROM files will cost you anywhere from $2 to $6 – a small price to pay to own a legitimate piece of gaming history. You can get an even better deal by purchasing StarROM credits – the coin of StarROM's realm, which is billed to your credit card – in bulk. Once you buy the games, they're yours to keep. There are no digital rights management restrictions, as there are with music you buy through the iTunes Music Store.

Macworld.co.uk Search Macworld's Reviews database online (**www.macworld.co.uk**), updated throughout the month

Best hacking and slashing

Dungeon Siege

★★★★/8.4

As much as we wanted to love the long-awaited Mac release of Neverwinter Nights and as much as we admire Geneforge 2's deep and varied storyline, the Mac dungeon crawl that captured our hearts and minds most thoroughly this year was MacSoft's Dungeon Siege.

Best described as an action and strategy game with role-playing elements, Dungeon Siege breaks the role-playing-game (RPG) mould by offering greater game-play variety. Dungeon Siege combines RPG fun – collecting stuff and levelling up your character with new abilities – with heavy doses of action that encourage you to use squad-based strategy. Add an innovative graphics engine that doesn't make you wait for levels to load every time you visit a new location, and you've got hours of hacking and slashing to relish.

What's cool:

A pack mule that can carry tons of supplies, but has a habit of running away from battle.

Who it's for:

Players looking for a successor to Blizzard's Diablo series.

From:

Softline, 01883 745 111;£39.99.

Best recycled idea

ThinkTanks

★★★★/8.1

Here at the Game Hall of Fame, I often find myself reminiscing about the 1980s – the golden-age of coin-operated video games, and a time when a game's graphics could easily be duplicated on fabric by any neophyte cross-stitcher. One of the all-time classics of that era was Combat, an Atari 2600 game that placed you and a friend in tanks on opposite sides of a 2D battlefield. This game was the inspiration for Bravetree Productions' ThinkTanks.

ThinkTanks puts you in the turret of a metal machine and sends you across a 3D battlefield to take on anyone who crosses your path – online or on your own computer. Strategically placed power-ups charge your cannon with special abilities, while jump pads let you snatch a brief bird's-eye view of the battlefield. It's an old concept smartly updated for gamers whose graphical tastes tend toward Unreal Tournament, but who still have a hankering for simple game play.

What's cool:

Being able to run your own multiplayer server from your Mac.

Who it's for:

People who get a twinge of nostalgia when they see the black, rubbery, single-button joystick of the Atari 2600 in video-game retrospectives.

From:

GarageGames, **www.garagegames.com**; $20. (Buy online.)

Best great game made greater

Warcraft III: The Frozen Throne

★★★★/8.7

Expansion packs too often fall into the trap of just padding their original games with more content and fluff, but not offering anything substantive. Not so with Warcraft III: The Frozen Throne. This official add-on to 2002's Warcraft III: Reign of Chaos makes an already good game even better.

As a role-playing strategy game, Warcraft III puts you in charge of heroes for each of four races that populate the war-torn world of Azeroth. The Frozen Throne adds an additional single-player campaign that starts off where the first one ended. You'll also find tons of new objects, units, and other goodies – including a new level-editor for folks who want to make their own mods. And The Frozen Throne offers new depth when you go head-to-head against PC and other Mac gamers online through Blizzard's free Battle.net matchmaking service.

If you've somehow missed Warcraft III all together, Blizzard has now put the original game and the expansion pack together – along with a pair of strategy guides to help you along – in a package called the Warcraft Battle Chest.

What's cool:

Replaying the game from the beginning and finding new ways to win.

Who it's for:

Players who just can't get enough of Warcraft III.

From:

Softline, 01883 745 111; £19.99.

Think different

ThinkTanks is a re-imagining of a cult 80s shoot 'em up – and it loses none of the original's charm or addictive gameplay.

Best sense of humour

The Operative: No One Lives Forever

★★★★/8.0

Many games can take themselves way too seriously. So when MacPlay released The Operative: No One Lives Forever, it was a welcome respite from the usual posturing and pontificating. Brandishing a corny sense of humor and outrageous, tongue-in-cheek caricatures, The Operative mixes first-person shooter game play with sixties-era style. In it, you assume the role of Cate Archer, an undercover agent charged with foiling the efforts of an evil underground group bent on world domination.

Although its graphics look a bit dated, The Operative is a whole lot of fun. It definitely kept me laughing. And like classic spy movies, just when you think you've seen it all, there's another stunt to challenge you. It's one part James Bond, one part The Avengers, and a dash of Austin Powers – served up shaken, not stirred.

The Operative: No One Lives Forever 2 should be hitting the shelves around the time this issue lands in your hands. While we haven't had a chance to put it through its paces, the sequel has the same trappings that made this first installment so much fun, with dramatically improved graphics and other embellishments that should make it worth keeping an eye on.

What's cool: The nifty Sixties-era lounge music, included in the box as an audio CD.

Who it's for: Anyone who's ever dreamt of being (or being with) Emma Peel.

From: Softline, 01883 745 111; £39.99. **MW**

On the horizon

Although these titles arrived too late to be considered for this year's Hall of Fame, they certainly have us on the edge of our seats. In fact, all of these games should hit store shelves just in time for the shopping season.

Halo

Few who witnessed Halo's debut at the 1999 Macworld Expo keynote speech would have believed it would be 2003 before MacSoft finally got the game into the hands of Mac users.

If you've already played Halo on an Xbox, you can expect a very different experience on the Mac. For one thing, it looks much better thanks to high-resolution support (for settings as high as 1,600-x-1,200) and pixel-shading technology found in newer graphics cards. Pixel shading provides more-realistic lighting and reflection details.

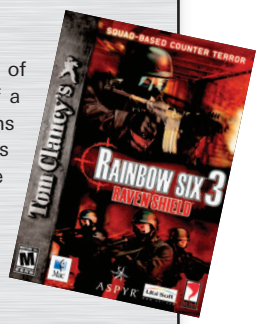
Halo also sports a new weapon, new vehicles, new maps, and several customizable multiplayer games – including PC-to-Mac multiplayer gaming support.

Unreal Tournament 2004

The Mac version of Unreal Tournament 2003, from MacSoft, may have arrived more than half a year after its PC counterpart, but the next installment is shipping at almost the same time. The latest edition of this futuristic arena combat series offers new game play modes, weapons, player models, and vehicles.

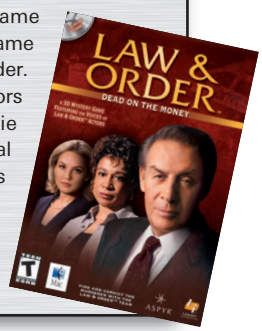
Favourite features included with the original Unreal Tournament but missing from UT 2K3 – for example, the Assault mode, where players try to achieve mission objectives – will make a comeback in UT 2K4. And fans of long-range shooting will be happy to have the Sniper Rifle back in their arsenal.

Tom Clancy's Rainbow Six 3: Raven Shield



If you like Ghost Recon, take a look at Aspyr's Mac conversion of Tom Clancy's Rainbow Six 3: Raven Shield. As the leader of a special operatives unit called Rainbow, you'll lead missions against a hidden terrorist threat as you travel to locales such as London, the Caribbean, and Rio de Janeiro. Also keep an eye out for Tom Clancy's Splinter Cell, which puts you in the role of a stealthy undercover operative working for the US government.

Law & Order: Dead on the Money



For something totally different from just about any game we've discussed this month, there's Aspyr's 3D mystery game based on the popular US television drama series Law & Order. The game features the faces and the voices of the actors you know from the show. You'll help Detective Lennie Briscoe collect evidence and information about a Central Park murder, and then you'll present those findings to Lieutenant Anita Van Buren. Once you have a suspect in custody, it's up to you to help Assistant DA Serena Southerlyn build a compelling case worthy of a guilty verdict.

secrets

hands on

Easy Mac maintenance

Run your Mac's self-repair routines automatically. **By Dan Frakes**

Just like your car, your Mac needs routine maintenance in order to run smoothly. Unlike your car, your Mac can perform some of this maintenance on its own. Two important tasks to perform regularly are Disk Utility's Repair Permissions and OS X's Unix maintenance scripts.

Repair Permissions ensures that system-level files have the correct privileges set; this is important because incorrect permissions can prevent applications from launching, cause problems with printing, and even affect startup. OS X's Unix maintenance scripts perform tasks that free-up disk

continues page 102

Schedule repair permissions

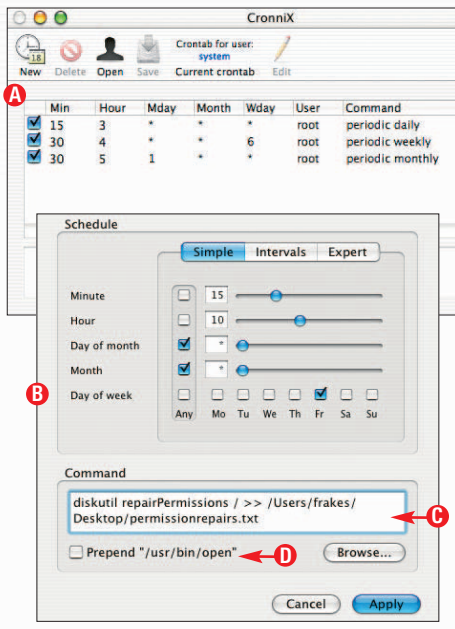
Meet cron

1 To automate an action with cron, you need to open a crontab (a cron table, or schedule) and then create a new entry – much as you'd create a repeating calendar appointment – that tells cron what to do and when.

CronniX gives you an easy-to-use interface for working with crontabs. Launch CronniX and then choose File: Open System Crontab. (Because these are system-level tasks, you're going to edit the system-level crontab; however, users also have individual crontabs.)

You'll notice that the default crontab (A) already has three entries; I'll talk about them later. Right now, you want to create a new entry, so click on the New button. The resulting schedule window (B) lets you create a schedule for the desired action and then designate that action.

I run Repair Permissions once a week, Friday mornings at 10:15am. (Whatever day and time you choose, make sure it's a time when your Mac will be on and awake.) Using my setup as an example, enter 15 in the Minute field and 10 in the Hour field (cron uses the 24-hour clock).



These two fields tell cron to execute this action at 10:15 am. The Month and Day Of Month options are unimportant, so put a checkmark in those options' boxes, or type an asterisk (*) in the value field – this tells cron to execute the event for any value of these fields. Finally, select the Fr (for Friday) option.

Tell cron what to do

2 Next you need to tell cron what you want it to do at the specified time. Although you can run Repair Permissions from Disk Utility, you can also run it from Terminal via a Unix command; this is the command we'll tell cron to run.

In the Schedule window's Command field (C), first erase the example contents, and then type the following line: diskutil repairPermissions /

The slash (/) indicates that you want to run Repair Permissions on the startup volume. This command doesn't give you any feedback; when you run Repair Permissions from Disk Utility, you get a report of the repairs it makes. I like to see this report, so I've used the following command instead (it should all be on one line, and case is important): diskutil repairPermissions / >> /Users/user name/Desktop/permissionrepairs.txt

(Replace user name with your user name.) Now your Mac will save a text report of repairs on the Desktop.

Make sure the Prepend "/usr/bin/open" option (D) isn't selected, and then click the New button to create the new event. Your new scheduled event will appear in the crontab. To test it, select it and then choose Task: Run Now. If all goes well (and if you've elected to save a report), the report should show up on your desktop after the utility has repaired permissions (this takes a few minutes).

Before exiting CronniX, click Save to keep the changes you made to the crontab. CronniX will ask for your administrator user name and password to verify that you have permission to make system-level changes. Your new crontab entry takes effect immediately. Repair Permissions will run in the background at the specified time, without your having to lift a finger.

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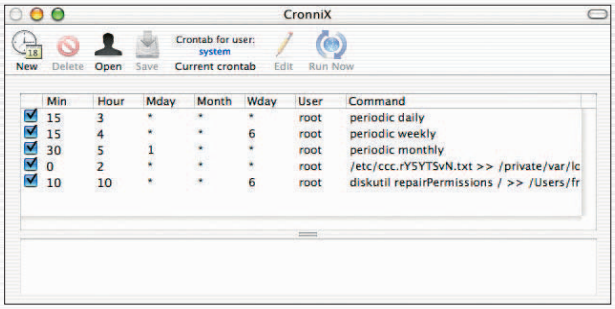
Ever-vigilant cron

If you don't have a Unix background, the cron utility is most likely foreign to you. However, it's one of the simplest and most useful Unix utilities you'll find in OS X. Cron runs in the background whenever your Mac is on. Every minute, it checks schedules called crontabs to see whether any command or script is supposed to run. If so, it runs them. If not, it takes a nap for 60 seconds, then checks again, and so on.

Anything you can do via a Terminal command, Unix shell script, or Mac OS AppleScript, you can run via cron at a specific day, date, and time. (The step-by-step section of this column provides you with a couple of good examples; for others, see "Put AppleScripts on a schedule".) You can even perform simple actions such as launching an application or opening a document (using the Terminal command open).

Crontabs – the schedules that tell cron what should run and when – are located in the invisible /etc/crontab directory, for the system crontab, and /var/cron/tabs, for user-specific crontabs. (Although we're editing the system-level crontab in this article because we're performing system-level tasks, you should generally edit only your own user-level crontab.) The crontab format is a bit messy. Each event consists of a single line with values for the minute, hour, day of month, month, day of week, user name, and command. For example, the default crontab entry that runs OS X's weekly maintenance script is `15 4 * * 6 root periodic weekly`


CronniX
New
Delete
Open
Save
Crontab for user: system
Current crontab
Edit
Run Now
Min Hour Mday Month Wday User Command
15 3 * * * root periodic daily
15 4 * * 6 root periodic weekly
30 5 1 * * root periodic monthly
0 2 * * * root /etc/ccc.rY5YTSvN.txt >> /private/var/lc
10 10 * * 6 root diskutil repairPermissions / >> /Users/fr

This entry tells cron that at 4:15am every Saturday (the sixth day of the week – the week starts on Monday), regardless of the month or the day of the month, the root user should run the periodic weekly command. At 4:15am Saturday morning, cron finds a match for that entry and then runs the command. User-specific crontabs omit the user name variable, since all events in a user's crontab are executed as that user.

You can view the system-level crontab by typing cat /etc/crontab in Terminal; likewise, you can edit crontabs in Terminal with the crontab command. However, viewing and working with crontabs in Terminal gets messy, and a utility such as CronniX makes the process easier. CronniX lets you access your own user-level crontab or, assuming your account has administrative access, the system-level (root) crontab. Entries for the chosen crontab are displayed in a format similar to Terminal's, but with labelled columns that you can rearrange if you find them easier to read in a different order. You can also create a new entry (via the New button), delete an entry (by selecting it and clicking on Delete), enable or disable any entry, or click on the Edit button to edit the selected entry. When you're done, click on the Save button to save changes, which take effect immediately. CronniX also lets you run a particular entry on cue (via the Run Now button). To view a different crontab in CronniX, choose Open For User or Open System Crontab from the File menu.

To learn more about cron, read the cron manual (type man cron in Terminal) or visit the CronniX Web site at **www.koch-schmidt.de/cronnix/docs/index.html**.

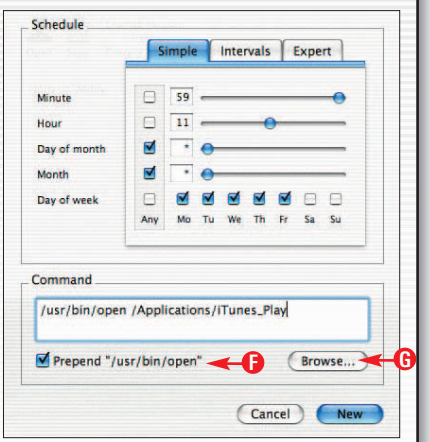
Put AppleScripts on a schedule

After reading the main article, you should know how to use cron to run Unix scripts and commands. It's just as easy to launch OS X applications and AppleScripts.

Launch CronniX and open your user-level crontab by choosing File: Open For User and then typing your user name.

Create a new event by clicking on the New button. Schedule the event as you did in the main article – choose the days, dates, and time you want the application or AppleScript to launch. However, in the Command area of the schedule window, delete the example text and select the Prepend "/usr/bin/open" option (F).

Click on the Browse button (G). Using the file dialog box, navigate to the application or AppleScript you want to run at the designated time(s). In the example shown here, I've chosen an AppleScript I wrote that launches iTunes and then tells it to begin playing music. I've scheduled this AppleScript to run just before noon on weekdays – perfect for reminding me that it's time to go to lunch. Click on the New button to create your new crontab entry. Then click on Save to save your edited crontab.

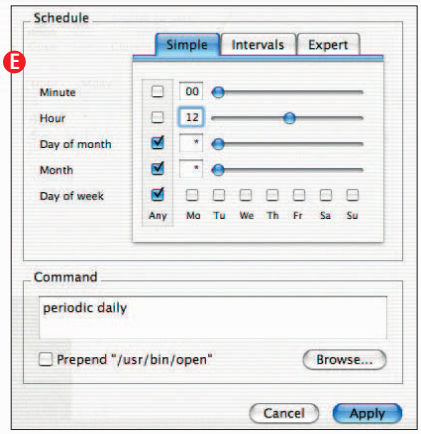


Because this is your user-level crontab, it will execute some events, particularly those that work with applications, only when you're logged in to your account. This is convenient for me, as I don't want my iTunes alarm event to run when someone else is using my Mac!

Schedule the scripts

Edit daily schedules

1 OS X comes with three Unix maintenance scripts – daily, weekly, and monthly – which you see in the default system crontab. These scripts are already scheduled to run on a daily, weekly, and monthly schedule, respectively. However, because of a long Unix history we won't get into, the default times (the daily script runs at 3:15am; the weekly, at 4:15am on Saturday; and the monthly, on the first day of each month at 5:30am) mean that the scripts will never run for Mac users who shut down their Macs or put them to sleep at night.



Utilities such as Brian Hill's free MacJanitor (**http://personalpages.tds.net/~brian_hill/macjanitor.html**) and Atomic Bird's $8 Macaroni (**www.atomicbird.com**) let you manually run these scripts or periodically check to see whether they've run, but it's more convenient to adjust the schedules so the scripts run when your Mac is likely to be awake. You'll use CronniX again, but this time, you'll edit the existing entries for the daily, weekly, and monthly scripts.

In CronniX, open the system-level crontab. In the Command column, you'll see the three cron events that run these scripts.

Select the daily (here, periodic daily) entry and click on the Edit button. In the schedule window that appears (E), change the Minute and Hour fields from 15 and 3, respectively, to a time when your Mac is generally on and awake. I changed mine to 12 pm, when I'm often at lunch, by entering 00 in the Minute field and 12 in the Hour field. (Leave the other fields alone, since you still want the script to run every day.) Click on Apply to save your changes.

2 Edit weekly schedules

Now you'll alter the weekly day and time.

Select the entry for the weekly script and click on Edit. If you don't typically use your Mac on weekends, deselect the Sa (for Saturday) option and select one of the week-day options. Then edit the Hour and Minute fields to reflect a time when your Mac will be on and awake. (Avoid choosing the same time you used for the daily script.) Click on Apply.

3 Edit monthly schedules

Making your final change to the monthly schedule is a bit trickier.

Since the monthly script is set to run on the same date each month, if the chosen date happens to fall on a weekend and your computer isn't running on weekends, the script won't run. For this reason, you should create two crontab entries for the monthly script.

Select the entry for the monthly script and click Edit. I recommend keeping the Day Of Month field set to 1 (which means the script will run on the first day of every month). Enter appropriate Hour and Minute values, just as you did for the daily and weekly scripts. (I use 12:45pm) Click Apply to save changes.

Next, select the entry you just edited in CronniX and choose Edit: Duplicate Task. Select the duplicate entry, click Edit, and then change the Day Of Month field to a different day. I recommend 5 – since it's impossible for both the first and fifth days of any month to fall on a weekend, this ensures that your monthly maintenance script will run the first week of every month. (In some months, both of these dates will fall on weekdays, meaning the script will run twice. Don't worry – this does no harm.) Click Apply.

4 Don't forget to save

You're almost ready to sit back and let the scripts do your maintenance work.

Click Save and then provide your admin user name and password. Your edits will take effect immediately and your maintenance scripts will run during normal working hours. If you've been using Mac OS X for a while and you've never run these scripts, you could gain a significant amount of hard-drive space the first time they run because of their cleaning actions.

5 More maintenance

Running Repair Permissions and the maintenance scripts regularly will go a long way toward maintaining smooth operations on your Mac, but they don't fix everything.

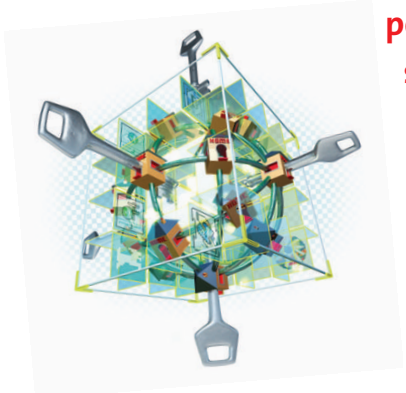
You should also run Disk Utility's Repair Disk once a month or so, on both your startup drive and any additional volumes. Repair Disk checks your hard drive for damage and directory problems; such damage, if it's serious enough, can prevent your Mac from even booting. It's also a good idea to occasionally run a more advanced disk-repair utility such as Alsoft's £70 (including VAT) DiskWarrior (**www.alsoft.com**) to ensure that your disk's directory is in tip-top shape.

Keeping your Mac running smoothly needs some work, but automating some of the tasks as described here, and maintaining a regular schedule of disk care, should grant you a stabler, more trouble-free experience in the long run.

space and keep the OS tidy by updating and backing up databases, cleaning out temporary files, and cleaning up system logs.

You should run Repair Permissions and the maintenance scripts when you boot your Mac into OS X. However, instead of having to remember to do these tasks yourself, you can tell your Mac to do them for you, using the built-in Unix utility cron and the CronniX utility (donations accepted; **www.koch-schmidt.de/cronnix/**). **MW**

DAN FRAKES is an editor at MacFixIt.com and the author of Mac OS X Power Tools (Sybex, 2003); he can be tracked down at www.danfrakes.com.



OS X's Unix maintenance scripts perform tasks that free-up disk space and keep the OS tidy by updating and backing up databases, cleaning out temporary files, and cleaning up system logs.

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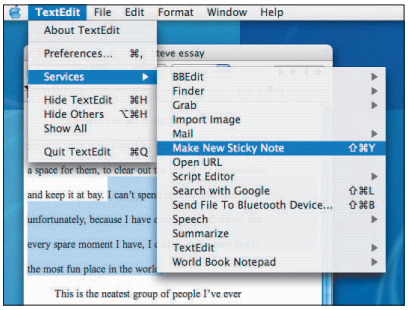
Full service

Don't overlook Mac OS X's Services feature. By Dan Frakes



If you're like most Mac users, you've probably never taken advantage of OS X's services – systemwide shortcuts that let you use one application's abilities from within another. If this is the case, you're missing out on a great productivity tool. Services, which are available from the application name: Services submenu, let you work quickly with text, graphics, files, folders – almost any kind of content. More specifically, they allow you to draw on the powers of another application if the one you're working in doesn't provide the tools you need.

Services in action You have to see services in action to really appreciate them. To take advantage of them, you select the desired content and then choose a service from the submenu.

Say someone emails you directions to a party, and you want to create a Stickies note with that information. You could highlight the text in Mail, copy it, launch Stickies, open a new note, and paste the text into the note. But with services, you can simply highlight the text and select Mail: Services: Make New Sticky Note. (Or in this case, press ⌘-shift-Y; many services have their own keyboard shortcuts, which are listed next to the service name in the menu.)

Or perhaps you're browsing a Web site in Safari and you want to copy some text to a new TextEdit document. Just highlight the text, and then select Safari: Services: TextEdit: Open Selection. What if you want to add a screenshot to a TextEdit document? Instead of taking the shot, finding it on your desktop, and dragging it to TextEdit, place the cursor where you want the screenshot to appear in the document, and select TextEdit: Services: Grab: Screen (or Selection, if you want only part of the screen). Grab will take the screenshot and insert it into your document.

Another interesting example is the Summarize service, which will reduce a large block of text – an online news article, for example – to a brief summary. Select a large text passage in a program that supports services, such as TextEdit, Safari, or Mail, and then select application name: Services: Summarize. A summary of the selected text will appear in a new window. You can even decide how compact the summary should be. Once you're satisfied, you can copy the summary for use in another app. I've found that the summaries this service generates are often surprisingly accurate.

TIP: If you find the Services submenu cumbersome, Nicholas Riley's free utility ICeCoffEE (★★★★/8.0; "Software Bargains," June 2003), lets you add a Services menu to the menu bar and/or to your systemwide contextual menus. Download it from **http://web.sabi.net/nriley/software/**.

Expanding your services

The previous examples demonstrate OS X's built-in services, but the real power of the services system lies in its expandability. Applications can add their own services, and you can install third-party services packages.

Application Additions Placing an application in your Applications folder will make its services available the next time you log in. Select Go To Folder from the Finder's Go menu, enter /Applications, and click on Go to open the Applications folder. (If you delete an application, its services will disappear when you next log in.)

For example, if you often gather text for research, a number of information databases, such as Devon Technologies' £21 Devonthink (**www.devon-technologies.com**), provide services that let you select text in any application and then quickly add it to your database as a plain-text or rich-text note. (It can even summarize long passages of text.) Using these services, you can reduce a five- or six-step process to just one or two.

Likewise, applications such as Bare Bones Software's BBEdit, Apple's Safari, and The Omni Group's OmniDictionary have their own services for working with text, opening URLs, and looking up word definitions, respectively.

In time for the holidays

Looking for something special to give to the hard-working Mac users in your life? The Memix Mega Memory Watch (reviewed September 2003, page 56) will be welcome in any Christmas stocking. Available in 128MB and 256MB versions, it's way cooler than a plain old hard drive on a keychain – the gadget is a tiny drive and a working watch. Tell the time while downloading MP3s, holiday-party photos, or office papers. The USB plug tucks into the band. It's available online from **www.memixdirect.com**, for £79 including VAT.

Scholle Sawyer McFarland

Standalone services To install a services package that isn't associated with any application and make it available to all users of your Mac, put it in the Services folder inside your general Library folder. Select Go To Folder from the Finder's Go menu, enter /Library/Services, and click on Go to open the Services folder inside this Library folder. To restrict its use to just your own account, select Go To Folder from the Finder's Go menu and enter ~/Library/Services (the tilde [~] represents your Home folder). Click Go to open the Services folder inside your user folder's Library folder. After you log out and then back in, the new services will be available.

You can find many third-party services packages at **VersionTracker.com** or **MacUpdate.com**). One of the best is Devon Technologies' free Word Service 2.5 (**www.devon-technologies.com/freeware.php**). This package provides 34 functions for working with text. It can automate text formatting, such as altering line endings and sorting lines, as well as text conversion, such as changing capital letters to lowercase ones or changing straight quotation marks to smart ones.

Add-ons

Other add-on services provide shortcuts for all kinds of tasks. KavaSoft's $5 Translation Service (**www.kavasoft.com/TranslationService/index.html**) lets you translate text to and from a number of languages, including major European and Asian languages.

SFree Terminal Services 1.0 (**http://homepage.mac.com/stas/terminalservices.html**) lets you select a bit of code and execute it as a command in Terminal. Nick Matsakis's free Browser Service 1.0 (**http://mit.edu/matsakis/software/BrowserService/**) lets you choose which browser will open a highlighted URL, regardless of the default browser. You can highlight a URL in one browser and use Browser Service to open that URL immediately in a different browser (helpful for Web sites that still aren't compatible with Safari).

Selznick Scientific Software's $15 AtYourService 1.0 (**www.selznick.com**) adds a number of services related to translation, Terminal, and Web activities, and lets you *create* Services. For example, if you find yourself frequently performing the same actions on text, create a set of manipulations and make it a service.

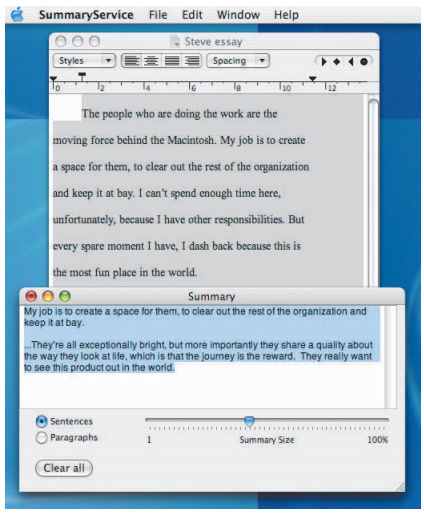
Services are great, but they do have a few limitations. Sometimes you'll find that the submenu is either dimmed or empty. The most common reason for this is that you haven't yet selected content (text, graphics, or a file or folder) that a service can use.

But that's not the only possibility. Some programs don't make use of services. Most apps written in Apple's Cocoa environment support them; however, developers not using Cocoa face some extra work. Currently, some popular applications such as Microsoft Word don't take advantage of services, although other non-Cocoa apps, such as BBEdit and OS X's Finder, do.

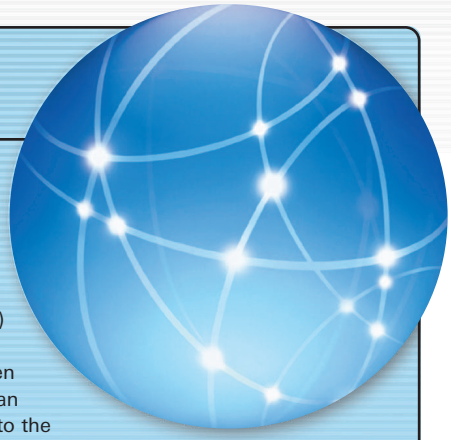
Another hitch: As of OS X 10.2, having too many (more than 70) services installed prevents the Services menu from functioning in non-Cocoa applications that support services, including the Finder. If this happens to you, remove a few of your custom-installed services and then log out and back in.

Services with a smile

Services can streamline the way you work. In addition, as more and more companies update their applications to take advantage of services, and as others release third-party service packages, the system will only get better. Start taking advantage of it now. **MW**


SummaryService File Edit Window Help
Steve essay
Styles
Spacing
The people who are doing the work are the
moving force behind the Macintosh. My job is to create
a space for them, to clear out the rest of the organization
and keep it at bay. I can't spend enough time here,
unfortunately, because I have other responsibilities. But
every spare moment I have, I dash back because this is
the most fun place in the world.
Summary
My job is to create a space for them, to clear out the rest of the organization and keep it at bay.
...They're all exceptionally bright, but more importantly they share a quality about the way they look at life, which is that the journey is the reward. They really want to see this product out in the world.
Sentences
Paragraphs
Summary Size
100%
Clear all

.Mac goodies



Many Mac users subscribe to Apple's .Mac service, but few take advantage of the three excellent and free utilities Apple provides to members. (You can download them all after logging into the **www.mac.com** Web site.)

1. Mac Slides Publisher allows you to create a slide show from a group of photos, and then upload it to your iDisk so other OS X users can subscribe to it. Make sure you're connected to the Internet, and then drag a group of JPEG photos onto the .Mac Slides Publisher icon. Publisher automatically creates the slide show and uploads it to your iDisk. To view your show, other Mac users simply select System Preferences: Screen Effects, click on .Mac, and then click on Configure. In the dialog box that appears, they enter your .Mac membership name.

2. Apple's iDisk Utility provides a number of tools for working with iDisks. Like the iDisk tab of OS X's Internet preferences, iDisk Utility lets you quickly check the capacity and current usage of your iDisk, as well as configure your iDisk's Public folder. However, iDisk Utility also provides a few unique options.

The Open Public Folder screen quickly opens any member's iDisk Public folder simply by typing the user's member name. (If the folder is password-protected, you'll be prompted for the password.) The Open iDisk screen lets you access any iDisk by entering the .Mac member name and password. These features are much quicker than using OS X's Connect To Server dialog box. In addition, if you've more than one iDisk, iDisk Utility lets you access any of them quickly. (The Finder's Go: iDisk command works only for the single account listed in the iDisk tab of the Internet preferences pane.)

3. Apple's iDisk Utility for Windows XP provides the same tools as the OS X version and is actually the only way to work with an iDisk from a computer running Windows. Apple encourages .Mac members to distribute the utility to their Windows-using friends.

Dan Frakes is an editor at MacFixIt.com, and the author of Mac OS X Power Tools (Sybex, 2003). He is currently hiding out at **www.danfrakes.com**.

Mic all night

Know the right microphone for the right occasion. By Jim Heid

Sound is an essential part of any movie, and nothing more clearly identifies the work of fledgling filmmakers than bad sound. It can turn indoor shots into a cacophony of unintelligible voices, unwanted noise, and room echoes. And it can make outdoor shots sound as though they'd been shot in the middle of a hurricane.

Don't make your viewers reach for the mute button. With the right equipment and a few tricks of the trade, you can dramatically improve your audio and give your movies a professional touch.

Blame the built-in

When it comes to bad audio, the most common culprit is the camcorder's built-in microphone. Consumer-grade camcorders tend to have low-quality mics. Often positioned far back on the camera or next to the drive mechanism, these mics have an uncanny knack for muffling the sounds you want to capture while amplifying the ones you don't – the whine of the camera's motors, for example.

To make matters worse, filmmakers often hold the built-in mic too far away from the audio's source. If you're shooting a school play from halfway across an auditorium, you may be getting great close-ups with your zoom lens – but the mic is still 50 feet from the stage, and it hears every room echo, excited parental whisper, and muffled cough.

So what can you do about your built-in mic? Easy – just don't use it. Instead, invest in a high-quality external mic and place it close to the action.

Choosing an external mic

Before you buy an external microphone, you should make sure your camcorder can accept one. Most midrange and all high-end camcorders have external mic jacks. (In most cases, it's a 1/8-inch stereo minijack.)

Microphones come in many sizes and designs. Which one you should choose depends largely on the type of films you create. For example, a lavalier mic, which clips to lapels or shirts, is great for recording training videos or anything else with a single voice. However, it isn't suitable for recording live music.

Unless you can afford to buy a mic for every occasion, you'll want to choose one that can adapt to different scenarios. Here are a few options to consider:

A general-purpose mic The most versatile type you can buy is a single-point stereo mic. A stereo mic bundles two microphone capsules in one package. This arrangement helps it get accurate balance and separation between the left and right audio channels.

I tested Audio-Technica's £349 including VAT AT822 stereo mic (pictured; **www.audio-technica.co.uk**) with my Canon Elura. I was astounded at the difference in sound quality. The AT822's recorded audio sounded much richer, free from the tinny qualities common with camcorder mics. Its removable foam pop-shield not only reduced outdoor wind noise but also helped prevent plosives – boomy, percussive consonants such as 'B's and 'P's – when I recorded narration inside. For a more economical option, check out Sony's £99 including VAT ECMMSD1.CE7 (**www.sonystyle.co.uk**).

continues page 108

Digital hub tip of the month

There's a certain classic beauty to black-&-white photos. But printing greyscale photos with a colour inkjet has traditionally proved troublesome, often resulting in unwanted tints or shallow tones. Hewlett-Packard is hoping to fix this problem with its new Photosmart 7960, an eight-colour inkjet that includes a separate cartridge for grey ink ($300; **www.hp.com**). According to HP, the grey ink helps create smoother gradations, richer shadows, and more-accurate tones.

Kelly Lunsford

A field guide to microphone placement

SCENARIO	IDEAL MIC PLACEMENT
Solo piano	A foot from the centre of the piano's harp, pointed at the strings. (The piano's recital lid should be open.)
Wedding	As close to the couple as possible. Many wedding ceremony videographers attach a wireless lavalier mic to the groom or the officiator. (Bridal gowns tend to rustle too much.) A mic hidden in a nearby flower arrangement may also work.
School play	Position the mic high, pointing down toward the stage at about a 45 degree angle. If you can't set up your own microphone stand onstage, try to place the mic at most a few feet away and as close to centre-stage as possible.
Narrator	The mic should be 6 to 9 inches from the speaker's mouth and pointed downward. To avoid plosive problems, use a pop-shield and position the mic just off to the side, pointing at the mouth. Alternatively, use a lavalier mic attached to the speaker's shirt.
Choral group	Place the mic 1 to 3 feet above and 2 to 4 feet in front of the first row of singers.

A Shure thing
The Shure KSM27 is a step-up in price – costing £249 excluding VAT – but it's well worth the money if you're dealing with different audio scenarios and need versatility.

If you'll be moving around while filming and need to keep the mic with you, consider attaching the external mic to your camera. Many mics come with an adaptor that mounts on your camcorder's accessory shoe – a small bracket often located on the top of the zoom lens. If your camera lacks this feature, get Sony's £13 (including VAT) VCT-S30L Cold Shoe Arm, an accessory-shoe that screws into your camera's tripod mount.

Keep in mind, though, that you'll get the best sound when your mic is close to the source – especially if you're recording a lecturer or another stationary subject. In these cases, you'll want to place the mic on a stand; this gives you the freedom to stand farther back with your camera. With high-quality extension cables, you can position a stereo mic and camera roughly 25 feet apart. (The AT822 includes a 10-foot cable.) At greater distances, however, you risk losing some high frequencies while picking up hum and other electrical noise.

Long-distance mic If you need greater distance between your camera and the mic, consider purchasing a balanced mic, which is wired in a way that reduces electrical noise and allows cable runs as long as 100 feet or even longer. A balanced mic costs more than an unbalanced one, but it may be worth the extra money if you often film events such as theatrical performances and need long cable runs.

Balanced mics typically require an XLR jack, something only high-end camcorders tend to offer. However, you can connect a balanced mic to your camcorder's unbalanced miniplug jack with the help of the DXA-6 adaptor, from BeachTek (£239 including VAT; **www.beachtek.com**; **www.ask2.com**). This compact metal box attaches to your camera's tripod mount. It requires no external power supply and has knobs for adjusting volume levels, as well as dual 48-volt phantom power supplies for professional mics.

Placement is everything

While the addition of an external microphone should help you record better audio, it's still only half of the equation. To do justice to any mic, you need to know how to position it properly.

How close should the mic be? That depends on what you're recording (see "A field guide to mic placement"). The closer the mic is to a sound's source, the less room noise and reverberation it picks up. But if it's too close, the stereo separation will become exaggerated – some sounds will come only from the left or the right speaker, while sounds in the centre will end up too loud.

If you're planning to record a live performance, show up for rehearsals so you can experiment with different mic distances. If your camera has a headphone jack, connect a good pair of headphones – the cups should surround your ears to block out external sounds. Record a test and play it back, listening for proper separation and minimal room noise.

For additional help, Shure, a microphone manufacturer, offers excellent mic-placement tutorials. You can download them from **www.shure.com/booklets**.

Recording narration

A movie's soundtrack doesn't always originate in the field. With narration or voice-overs, for example, sound recording happens during the postproduction process – a scenario that presents its own set of audio requirements.

When recording narration, you want to eliminate as much ambient noise as possible. Consider assembling a makeshift sound booth that will absorb room echoes while blocking out the noise of your computer and hard drive. For soundproofing that you can use over and over again, invest in some sound-absorbing acoustical foam (see **www.studiospares.co.uk** for a wide selection), and glue it onto two sheets of plywood or foam core. Position the two sheets in front of you in a V shape, with the mic at the narrow end. If you're on a tight budget, you can use blankets, pillows, carpet remnants, or even a coat closet to achieve the same effect. The idea is to surround yourself and the mic with sound-absorbing material.

Record your narration at the beginning of the editing process so you can then edit the accompanying footage to match the speaker's pacing. (To record narration in Apple's iMovie, use the Audio pane. In Final Cut Express, use the Voice Over tool.) Try to cut from one shot to another at natural breaks in the narration, such as at the end of sentence.

By using a good mic and the proper placement, you'll record sparkling sound that complements your video instead of detracting from it. Your movie will have less hiss, clearer voices, a richer texture, and an impressed audience. **MW**

Capture ambient noise

If you're shooting scenes where the audio is mostly ambient sound – the waves at a beach or the din of a party, for example – take the time to shoot several minutes of uninterrupted video while keeping the camera stationary.

After importing the video into your editor, delete the video track and keep the audio. (In iMovie, drag the video clip to the timeline and choose Extract Audio from the Advanced menu.)

You now have a seamless audio bed upon which you can put a series of muted video shots. This technique eliminates jarring changes in sound between each shot.

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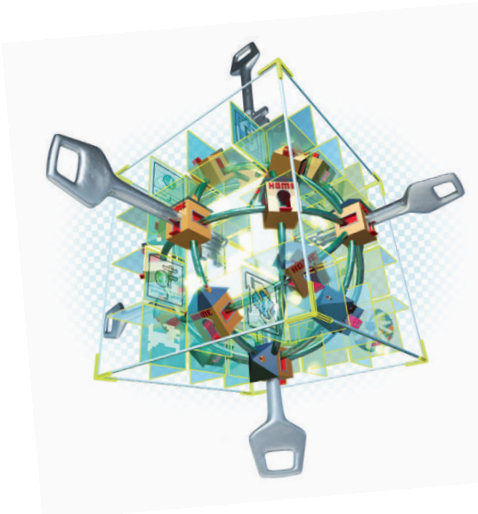
Emergency OCR

Data recovery – when you don't even have data. By David Fanning



Picture the scene: you've written a paper or a business plan, it's been reviewed, marked or put before the board, and now everybody wants to see it. The problem is you deleted it, saved over it, or lost the original electronic document. Whatever the reason, you now only have your masterpiece in a paper format, and being a little dog-eared, you can't just photocopy it.

This might seem like a rare or even ridiculous scenario, but it happens – and even if it hasn't happened to you yet, it could. That's why you'll want to keep this month's Macworld cover CD in a safe place, because one day, for whatever reason, you'll be glad you had an optical character-recognition (OCR) tool.

Iris, the leading OCR specialist, has been kind enough to let us present you with version 7.6 of Readiris Pro. It isn't the latest version – that's version 9, reviewed on page 62. However, version 7.6 is Mac OS 9 and OS X compatible and is 100 per cent free to Macworld readers on the cover disc of this issue. You can register it; you can even upgrade it. Whatever you do, make sure you have it loaded, just in case.

There are two ways of using Readiris Pro: either directly with a scanner, or by using it to read image files. Whichever input method you employ, Readiris can take a solid block of pixels and translate them into an editable text file.

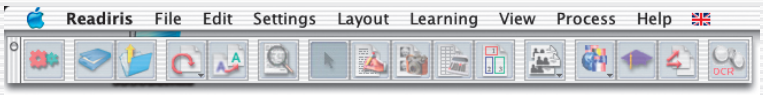
Imagine retyping that 50-page proposal yourself, and then go and put our cover disc in a fireproof safe.

Recovering the unrecoverable

1 Once you've installed Readiris Pro, it needs an input to get the text into the Mac. If you have pre-scanned files, you can simply open them in the application.

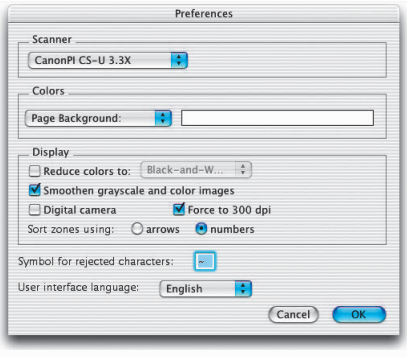
Better still, you should be able to scan directly from Readiris – if you have a scanner. All scanners should be supported, so long as they have either a TWAIN driver, or a Photoshop plug-in. While this covers all the scanners I've ever found, they may not work without a little tweaking. Newer scanners should install the driver in the Application Support folder that hides in your Library folder in the top level of your hard drive.

If your scanner is older, or for some reason the installer doesn't automatically install a driver in the Application Support folder, you may have to do it manually. Do this by looking in your Photoshop folder (if you have one) for the scanner plug-in. If it isn't there, it may be necessary to download an installer for your scanner drivers and reinstall.



Once you've found the driver, drag a copy of it into the Application support folder.

2 After relaunching Readiris Pro 7.6, look under the Readiris menu for the preferences. They should show your scanner (and possibly others) in a drop-down menu. Select the right model and you're ready to go. While you have the Preferences open, it's look at the other options. One checkbox that's definitely worth ticking is the Force to 300dpi option. Otherwise it has a tendency to scan things at 72dpi, which gives less-impressive results. Close the box, and you're ready.



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Icon action

Iris is a Belgian company that it prides itself on its language support. For that reason the toolbar is labelled with icons only, but the functions aren't always entirely obvious. Simply let your cursor hover over the icons and the labels will appear.

3 There's a very tempting button to press that claims it will do Automatic OCR. This is a bit hopeful; if you've anything more complex than a regular page of text, this option will give unpredictable results. If you do have neatly printed text, this button could be the only button you need to press. Otherwise, there are more things to do. Go to the settings menu and select Page Deskewing and Orientation detection. These will make sure that even if the page is wonky in the scanner, it won't affect the OCR.

4 Clicking the scanner icon in the toolbar will launch the scanner software, which will vary according to your scanner. Set the resolution to at lest 300dpi and after a pre-scan, scan the area that's to be converted to text. When happy with your selection, tell it to scan and move on to step five

5 What comes up next is the scanned document with each block of text and each image in yellow boxes. Each box is linked either by arrows or is optionally numbered to denote the order in which the text will run. Readiris is pretty good at this, but if you spot any mistakes, it means going into zone sorting mode. It isn't as scary as it sounds – it simply means clicking on each zone in the order you want them to appear when translated.

Readiris File Edit Settings Layout Learning View Process Help
Commentary
Thar's gold in them thar homes
Macworld
Next Month in Macworld

5

If the zones are out of whack, you may need to select your own. This, again, is simply a matter of drawing boxes around areas and deciding whether they are graphics, text or tables.

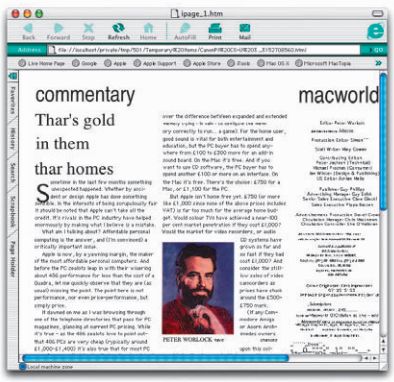
6 This step is optional, but if you're scanning a foreign language, you can select the language from the languages button. This will make things easier because otherwise an English dictionary won't know what to do with a French document.

6

7 Another optional step, but if you intend to regularly scan an odd font, such as a script or novelty font, you may want to turn on learning. Readiris is fine with most normal fonts, but unusual ones can throw off its ability to recognize text. With learning turned on, it will prompt you for any letters it doesn't recognize and remember them for nest time. Keep this turned off unless there's a need for it.

8 Choose your output file. For most things, RTF will be the file of choice because it's editable. However, you can output to PDF, HTML and plain .txt. If attempting to save the same layout style, PDF or HTML will give the most accurate layout. You may need to set an application to launch with the created file.

9 Hit the OCR button and let it rip. If things don't turn out to your liking, you can always go back and rearrange the boxes or output format.



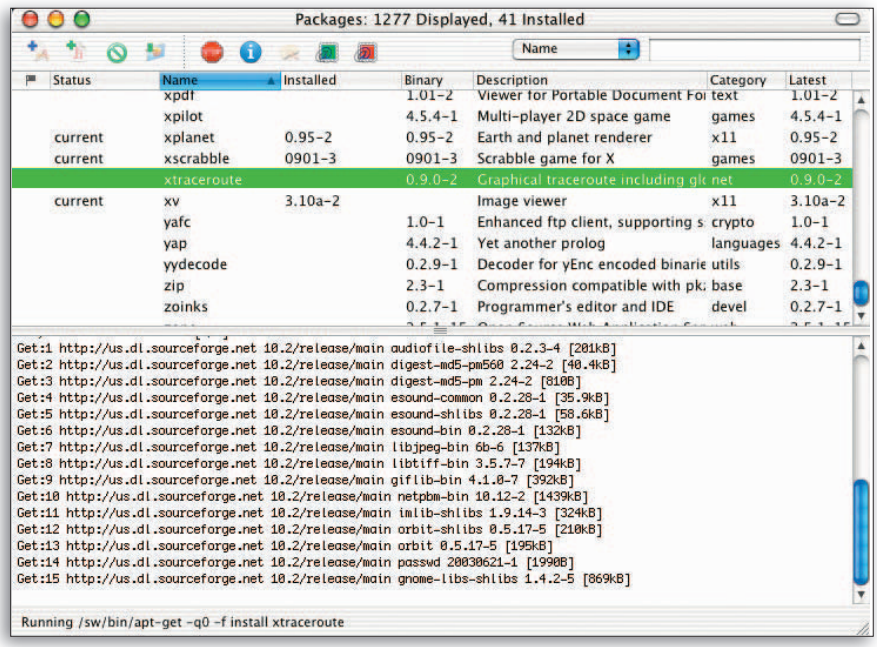
You will find version 7.6 of Readiris on this month's cover CD. It's a full version for you to keep, but there is also a 30-day demo version of the latest version 9. Version 9 is a more sophisticated and advanced version, so regular OCR users may want to upgrade. Not only is Iris giving you version 7.6, but it's even allowing you to upgrade for just £69 instead of the normal £82 price. To take advantage of this generous offer contact Widget on 0800 138 1639, or go to the Web site at **www.widget.co.uk.**

X11 for Unix-heads

Deploy Unix applications with a friendly Mac-style interface. By Jim Akin

If the idea of running Unix applications on your Mac excites you but using Terminal drives you crazy, you may be wishing for some sort of middle ground between OS X's polished Aqua interface and its raw command line. Your wish has already been granted, in the form of X11, a longtime Unix system for running applications that have graphical interfaces you control with your mouse. With X11, you can run a host of powerful, useful, fun, and free applications.

Apple has integrated X11 into Mac OS X 10.3 (Panther), but even if you're not using Panther, you can get a jump-start by installing the public beta version of X11 from Apple and then using another program, FinkCommander, to find, install, and use cool X11 applications.


Packages: 1277 Displayed, 41 Installed
Name
Status
Name
Installed
Binary
Description
Category
Latest
xpdf 1.01-2 Viewer for Portable Document For text 1.01-2
xpilot 4.5.4-1 Multi-player 2D space game games 4.5.4-1
current xplanet 0.95-2 0.95-2 Earth and planet renderer x11 0.95-2
current xscrabble 0901-3 0901-3 Scrabble game for X games 0901-3
xtraceroute 0.9.0-2 Graphical traceroute including gk net 0.9.0-2
current xv 3.10a-2 Image viewer x11 3.10a-2
yafc 1.0-1 Enhanced ftp client, supporting s crypto 1.0-1
yap 4.4.2-1 Yet another prolog languages 4.4.2-1
yydecode 0.2.9-1 Decoder for yEnc encoded binarie utils 0.2.9-1
zip 2.3-1 Compression compatible with pk; base 2.3-1
zoinks 0.2.7-1 Programmer's editor and IDE devel 0.2.7-1
Get:1 http://us.dl.sourceforge.net 10.2/release/main audiofile-shlibs 0.2.3-4 [201kB]
Get:2 http://us.dl.sourceforge.net 10.2/release/main digest-md5-pm560 2.24-2 [40.4kB]
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Get:15 http://us.dl.sourceforge.net 10.2/release/main gnome-libs-shlibs 1.4.2-5 [869kB]
Running /sw/bin/apt-get -q0 -f install xtraceroute

A bit of Xposition

Before installation begins, here's a little background: The terms X11, X Window System, and just plain X are interchangeable and refer to a collection of software modules and libraries that replicate the interface experience of Mac OS or Windows for the Unix crowd.

Variants of X11 have been developed to run on virtually every computer platform, and serious X11 fans have been running one of them, the open-source XFree86 (originally built for Intel-based PCs), on Macs since the earliest days of OS X. Last year Apple released its own version of XFree86 with a few enhancements, including default support for OS X Quartz technology, which produces familiar transparent windows, buttons, scroll bars, and so on.

Getting started

Before you install X11, remember that it's beta software, so the usual caveats apply: back up your system before installation, and test all X11 applications thoroughly to make sure they're stable before using them for critical work. Having said that, X11 beta 3 proved very stable in our testing. And because X11 runs on a peer level with the Aqua interface – both run on top of your Mac's Unix core – neither it nor the applications that run under it are likely to interfere with your Aqua or Classic applications or settings.

Before you download X11, you'll need an up-to-date version of the December 2002 release of Apple's Developer Tools for OS X. If you didn't get it with your copy of Jaguar, go to **https://connect.apple.com**, fill out a registration form, click first on Download Software and then on Developer Tools, and download the latest version of the package and any updaters. The Developer Tools installer, which requires an administrator-level password, will create a new /Developer folder. Resist the temptation to move the folder to /Applications or anywhere else.

Now it's finally time to grab X11. Head to **www.apple.com/macosx/x11/download/**, click on the Download X11 button, and then go back and click on the Download SDK link in the lower right corner of the page. Run the X11 installer and then the SDK installer. When it's all done, click the X11 icon in your Applications folder and fire up X11. You'll know you've succeeded when your cursor briefly turns into a cool X and a window, titled xterm, that looks suspiciously like Terminal opens on your screen.

continues page 114

Aye, commander
FinkCommander lets you download, compile, and install Unix apps with ease – all from a nice Aqua interface.

Welcome to X11

Before you get started with X11, it's a good idea to make it a bit more Mac-like.

Choose X11: Preferences and select Emulate Three Button Mouse. Once you do this, a single-button Mac mouse will act like a three-button Unix mouse: option-click will emulate a right-click (which appears in X11-application shortcut lists as Ctrl-Click or C-Click) and ⌘-click will emulate the middle button (M-Click or Meta-Click in shortcut lists).

In standard Linux applications, switching between open windows requires clicking on each new window twice. The first click focuses the window, or makes it active; the second interacts with the contents of the window, moving a cursor or activating a button. A hidden option in Apple's X11 application eliminates this excruciating click-to-focus behaviour. To turn the option on, quit X11, open Terminal, and type defaults write com.apple.x11 wm_ffm true. When you restart X11, all windows will respond on the first click.

Think Fink

The powerful FinkCommander utility works with the Unix command fink to let you browse a continually updated directory of Unix applications and download, install, or update any program you choose.

As with X11, you'll need to install a couple of components to get FinkCommander up and running. First, download and run the Fink binary (**http://fink.sourceforge.net/download**). As you're installing Fink, you'll be prompted to create a file named .cshrc in your Home directory – agree by typing Y and pressing return. If you don't do this (or if you aren't prompted to for some reason), you can do it yourself by entering the following Terminal command: echo -n "source /sw/bin/init.csh" > ~/.cshrc.

Once all that ugliness is out of the way, just download FinkCommander from **http://finkcommander.sourceforge.net** and install it in your Applications folder.

From FinkCommander, you can browse for cool programs to try. Note that not all the programs you see in FinkCommander are compatible with X11, and that X11-compatible programs aren't confined to FinkCommander's X11 category. Highlight a program's name and press ⌘-I for an expanded description; in the likely event you want even more information, follow the link to the developer's Web site – just remember to return to FinkCommander when you want to download and install the program, rather than using links on the developer's site.

When you're ready to install the software, click on the leftmost toolbar item (or choose Binary: Install) to begin the process.

Once you've installed an application with FinkCommander, you can add it to X11's Applications menu by choosing Applications: Customize. Click Add Item, double-click the Name field, and enter your program's name. In the corresponding Command field, enter your program's path, which for programs installed via FinkCommander will always be /sw/bin/filename.

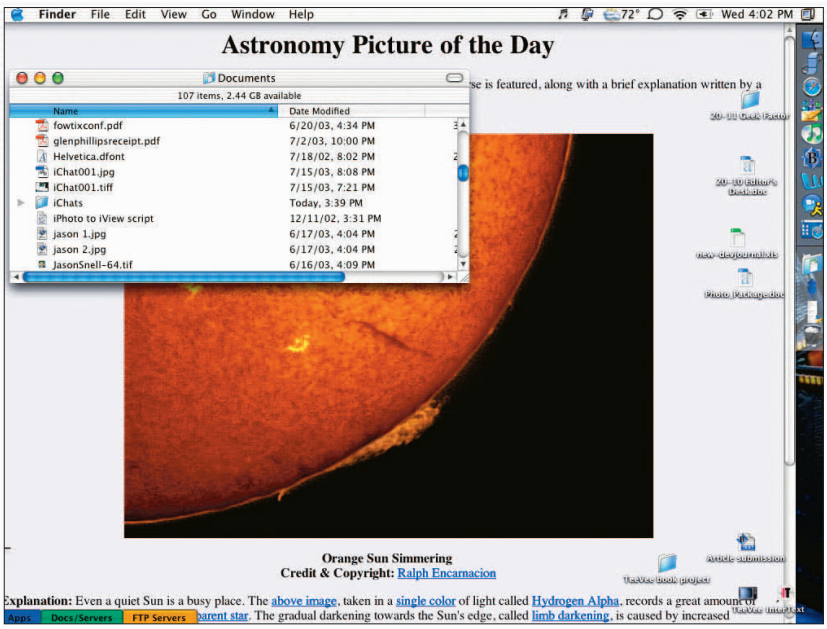
To determine the right file name to use, you may need to look in the bin folder inside the sw folder that Fink has created at the root level of your hard drive. The proper file will probably contain the name of the application, but installations sometimes create multiple similarly named files, so you may need to try a few of them before you get the right path.

Time to explore

Once you've got FinkCommander up and running, you're best off browsing and exploring the Unix wonders it has to offer. You may get frustrated at times, but you'll also find a wealth of software – much of which has been in development for many years – that you can finally run on your Mac. **MW**

Hack of the month: Desk job

I never really understood why Windows' ability to display Web pages on the desktop was worthy of envy by Mac users. But Steven Frank, the cofounder of Mac software maker Panic (**www.panic.com**), has managed to create a clever hack that does almost the same thing. WebDesktop (**http://stevenf.com/index.php?node=WebDesktop**) uses Apple's WebKit HTML rendering engine – the same one used by Safari – to display a Web page on your desktop. Click in the Dock to activate WebDesktop, and you can even load hyperlinked pages in the same transparent floating window. Does it work? You betcha. Do I really get why I need it? Well, no, but when it's a cool hack, necessity isn't always necessary. **Jason Snell**


Finder File Edit View Go Window Help
Wed 4:02 PM
Astronomy Picture of the Day
Documents
107 items, 2.44 GB available
Name
Date Modified
fowtixconf.pdf 6/20/03, 4:34 PM
glenphillipsreceipt.pdf 7/2/03, 10:00 PM
Helvetica.dfont 7/18/02, 8:02 PM
iChat001.jpg 7/15/03, 8:08 PM
iChat001.tiff 7/15/03, 7:21 PM
iChats Today, 3:39 PM
iPhoto to iView script 12/11/02, 3:31 PM
jason 1.jpg 6/17/03, 4:04 PM
jason 2.jpg 6/17/03, 4:04 PM
JasonSnell-64.tif 6/16/03, 4:09 PM
Orange Sun Simmering
Credit & Copyright: Ralph Encarnacion
Explanation: Even a quiet Sun is a busy place. The above image, taken in a single color of light called Hydrogen Alpha, records a great amount of
Apps
Docs/Servers
FTP Servers

More info

Apple's X11 Help menu links to an all-but-useless Web page, so try these sites for more information:

Apple's X11-Users Mailing List Archives
www.lists.apple.com/mailman/listinfo/x11-users

Mac OS X Hints: Unix
www.macosxhints.com/index.php?topic=unix

OSXFAQ Unix Tips
www.osxfaq.com/tips/unix-tricks/

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• iPhoto CD-burning • OS X speech • Audio tweaking • iCal tips

Q&A/tips

Handy tips and readers' questions answered. **By Christopher Breen**

Change of address

Q I've collected several hundred URLs in Netscape 4.7 by drag-&-dropping the small icons at the left end of the Location field onto the desktop (where they turn into bookmark files). Then I upgraded to Netscape 7. Now when I double-click on one of the old icons, it opens as a file in Netscape, rather than directing my browser to the site. Is there a way to convert my older bookmarks to work with Netscape 7?
A E Siegman

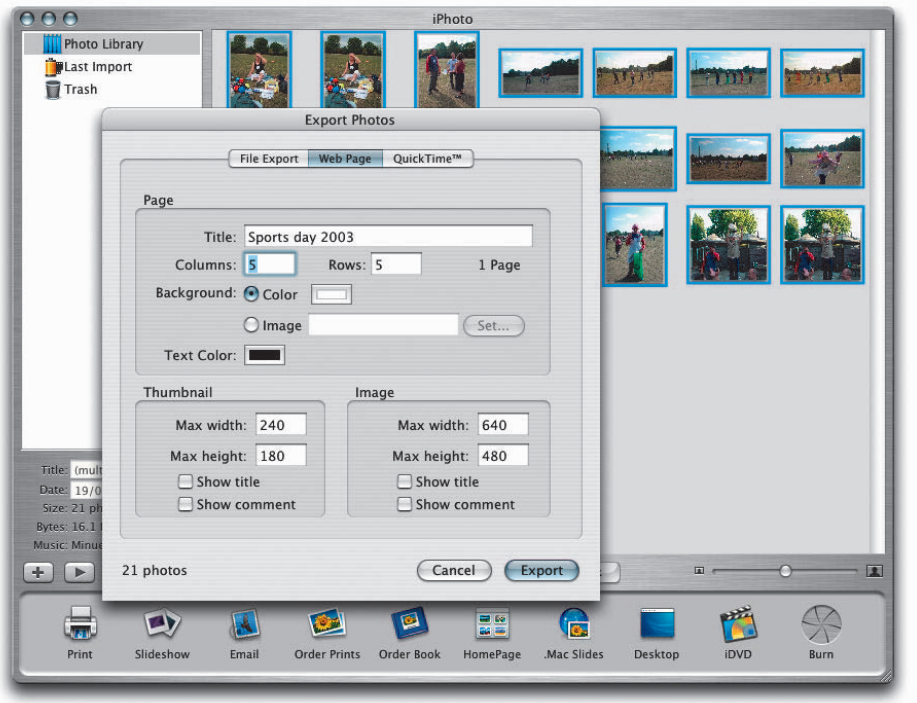
A There is. Download, install, and launch a copy of Alco Blom's $25 URL Manager Pro (**www.url-manager.com**). Create a new folder by selecting New Folder from the Bookmarks menu, and give it an intuitive name such as Convert. Drag your URLs into this folder and, once they appear, drag them right out again. This converts them into Web Internet Location files. Double-click on one of these files, and your default Web browser will launch and whisk you to the Web site associated with that URL.

Short clips

Q When I make an iMovie film, I like to archive it to DV tape. I occasionally need to edit an archived movie, but when I capture it into iMovie, the program automatically divides it into clips. Is there any way to make iMovie capture the movie into a single video clip?
Jeffrey Johnston

A It depends on the length of your video. iMovie creates new clips when it detects a scene change – a convenient feature when you capture raw footage, but not desirable in your situation. Thankfully, you can easily put an end to this automatic clip creation. Just select Preferences from the iMovie 3 menu and deselect the Automatically Start New Clip At Scene Break option.

This may not completely free you from multiple clips. iMovie limits clips to 2GB (which works out to 9 minutes, 28 seconds, and 2 frames). If your video exceeds this length, iMovie automatically creates a new clip when it reaches the 2GB limit.



Picture disc

Q I read an article recently that described how to create an HTML file with relative links to photos on a CD-ROM on a Windows PC. It contained a lot of HTML code. Is there an easier way to do this on the Mac?
John Peterson

A This can be more difficult on a PC because of Windows' insistence on assigning letters to media drives and hard drives. If you use Windows' regular file shortcuts, they may point to the pictures on the PC's hard drive rather than to the files you've burned to the disc.

And that, dear John, is Why Windows Stinks: Reason 9,862. There's no need to write a single smidgen of HTML code to accomplish this task on a Mac. Just launch iPhoto 2, select the photos you'd like to add to your disc, and select the Export command from iPhoto's File menu. In the resulting Export Photos window, click on the Web Page tab and enter a title for your photo album in the Title field (MyCoolPix, for example). If you care to, change the settings for the number of columns and rows of pictures, as well as for the size of the thumbnails and images, on the HTML pages iPhoto generates. Click the Export button; in the sheet that appears, create a new folder to store the HTML files in. Select this new folder and click OK. Your collection of photos will be saved as a series of HTML index files that display thumbnails of your pictures, as well as folders that contain those thumbnails and the full image files.

Insert a blank CD, copy the folder you created to the CD, and burn the CD. To browse the finished CD, simply shove it into a Mac or a PC and double-click on the index page (which, using the earlier example, would be called MyCoolPix.html). The computer's default browser will open, revealing the first page of the index, replete with thumbnails of your pictures. Click on a thumbnail to view the full image.

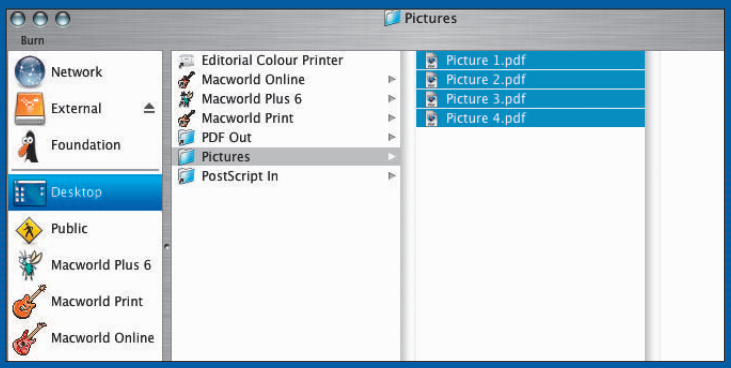
continues page 292

Open picture files in order

TIP When you select multiple picture files numbered in a series – Picture 01, Picture 02 and Picture 03, for example – and double-click on them, Preview doesn't display them in order.

There are two ways to make the pictures appear in sequence: open a folder full of pictures in column view, select them all, and double click on them.

Or launch Preview, press ⌘-O to produce the Open dialog box, navigate to your pictures, ⌘-click on the pictures you want to view, and click Open. With either method, the thumbnails will appear in the proper order.



The song remains the same
Use iMovie to link audio tracks together in one long tune – great for continuous background music.

Missing link

Q Is there any way to connect a number of tunes in iTunes, for background music behind a long slide show?
Bill Semplice

A I haven't found a slideshow application that can do this. However, there's no reason you couldn't stitch together the tunes you'd like to play during your slide show. The free way to do this is to import the songs you want to join into iMovie 3.

Click the Audio button in iMovie and drag the songs you want to string together into the timeline (these songs can be in any audio format that iTunes supports, including protected AAC files from the iTunes Music Store).

Select Export from iMovie's File menu, and in the iMovie: Export window that appears, select To QuickTime from the Export pop-up menu. Choose Expert Settings from the Formats pop-up menu and click the Export button.

In the resulting Save Exported File As window, choose Sound To AIFF from the Export pop-up menu; then name and save the file (see "The song remains the same", left). The tunes are now contained in a single audio file that can be used to accompany the slide show.

If you're willing to convert your slide show into a QuickTime movie, you can create the entire slide show in iMovie. Add nothing except still clips to your movie, drag the song files into iMovie's soundtrack, adjust the length of the still pictures so they fit the length of the soundtrack, and then export your creation as a QuickTime movie.

Days of our lives

Q I love the power of Microsoft Entourage and its tight integration with the rest of Microsoft Office. However, I'm extremely envious of the ability to painlessly publish an iCal calendar on my .Mac homepage.

Yet to do this, I must delete my current Entourage import from iCal, import my Entourage calendar into iCal, and publish the new iCal calendar to the Web.

This is so time-consuming that I don't do it nearly often enough. I've been looking everywhere for an easy solution to this problem, but haven't found one. Maybe you can help?
Barry Rosenbaum

A Maybe I can. If you wish only to get your Entourage calendar onto your .Mac site, you can skip iCal altogether.

Just click the Calendar button in Entourage and select Save as Web Page from the File menu. In the resulting window, enter the start and end dates for your calendar (December 1 – December 31, for example) and click Save. In the Save dialog box that appears, give your calendar a name – something snappy; 'calendar', for example.

Now mount your iDisk and drag the resulting calendar.htm and calendar folder into your iDisk's Sites folder. If you leave these items at the root level of your iDisk, you and your pals can access it at: **http://homepage.mac.com/yourmembername/calendar.htm** (where yourmembername is, well, your member name). If you place them in their own folder (subdirectory), be sure to provide the full path to it – such as: **http://homepage.mac.com/yourmembername/personal/reallypersonal/calendar.htm**

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Freedom of speech: make OS X talk to you

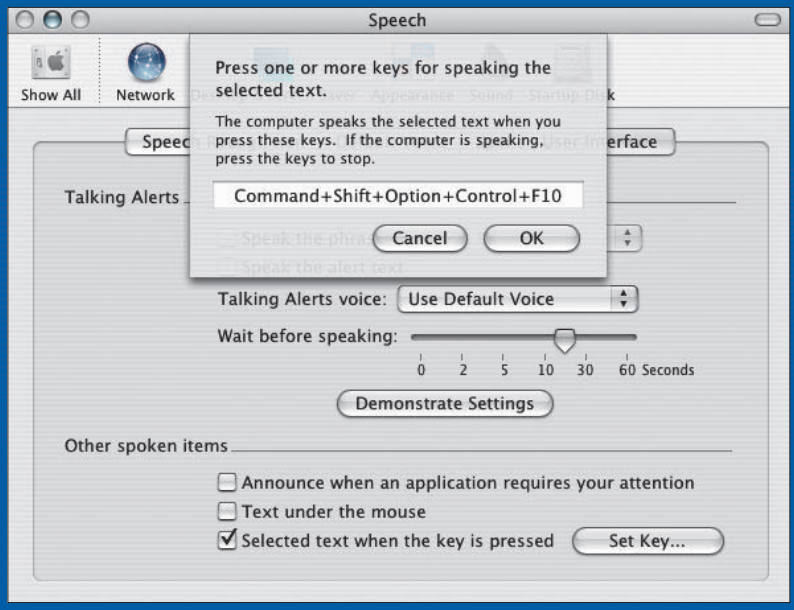
TIP Having your Mac read text documents aloud is a great proofreading tool – you're more likely to notice mistakes when you hear them. The Services command in OS X's Finder menu offers a Speech command from which you can choose Start Speaking Text, but this service works only in applications such as Apple's TextEdit, Safari, and Mail.

If you're using Microsoft Word, the service is unavailable. Although you could copy and paste your Word document into TextEdit, there's a simple way to hear your text within its original application.

Open the Speech preference pane, click on the Spoken User Interface tab, and enable the Selected text when the key is pressed option. Click on Change Key, and enter a keyboard command for activating text-to-speech (choose a key combination your applications don't use).

Once you've set this up, you can select the text in any application and press your keyboard command to hear the text read aloud. Press the keyboard command again to stop it.

Garrick Chow

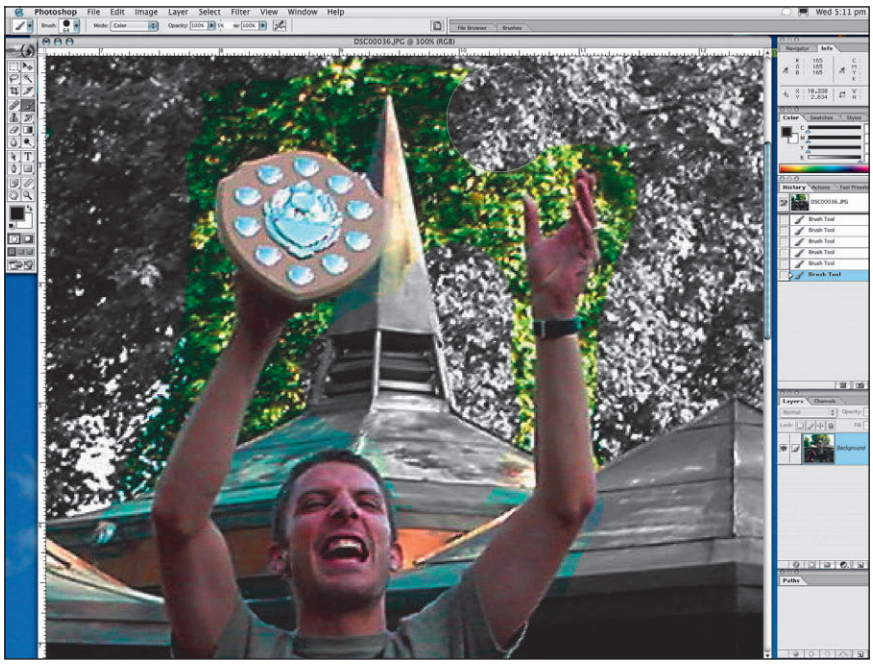

Speech
Show All
Network
Press one or more keys for speaking the selected text.
The computer speaks the selected text when you press these keys. If the computer is speaking, press the keys to stop.
Talking Alerts
Command+Shift+Option+Control+F10
Cancel
OK
Talking Alerts voice:
Use Default Voice
Wait before speaking:
0 2 5 10 30 60 Seconds
Demonstrate Settings
Other spoken items
Announce when an application requires your attention
Text under the mouse
Selected text when the key is pressed
Set Key...

Colourful character

Q I'd like a quick way to make some parts of my Photoshop image greyscale, while leaving others in colour – but I don't want to mess with channels or selections. Is there a quick-&-dirty way to do it?

Kelly Hensler

A Yep. If you select the Brush tool, go to the Mode pop-up menu, and choose Color from the list, you'll be able to 'paint' in grey over your image – experiment with different brushes (soft and hard) and opacities for vignette.



Go on, my son

Experimenting with Photoshop's blending modes can often give the results you want without the need to go wading through dialog boxes.

You have the power

TIP In the past I've mentioned that you get greater play time from an iPod if you turn off backlighting, play tunes smaller than 9MB, run the iPod at room temperature (or, at least, not under 50°F), keep your hands off the Forward and Back buttons, and turn off EQ and Sound Check.

With the release of Belkin's Voice Recorder for iPod (reviewed Expo Issue 2003), there's one more way for you to keep from unduly draining your iPod – when recording voice, switch off recording when you're done rather than pausing the recording.

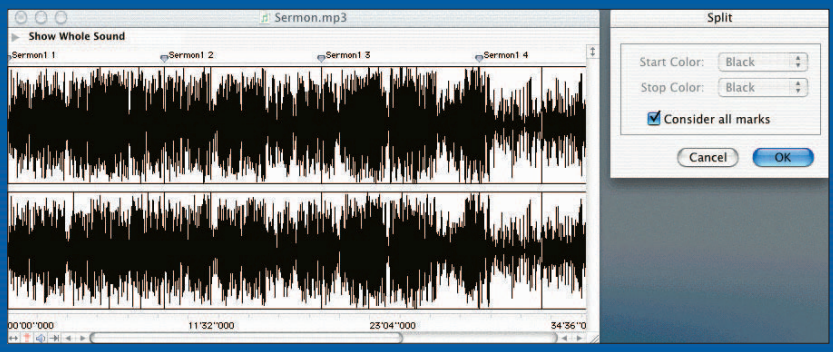
When you pause a voice recording, the hard drive continues to spin, thus draining the battery. When you stop recording and exit the recording screen, the hard drive takes a break.

XPress 6 file-open fillip

TIP When I upgraded to QuarkXPress 6, I, like many others, found I was unable to open many files saved by older versions. Quark proposed installing a virtual printer, but that didn't work for many people.

Inserting breaks in continuous audio streams

Q We record the ministers in our church and then transfer the resulting audio files to a Mac, so we can make CD copies for members. We'd like to insert a break in the audio every ten minutes, so members can choose a point at which to start listening. Is there a program that inserts such breaks automatically?
Stan Bemel



A I'd tackle such a project by dividing the sermons into separate, ten-minute audio files and then burning those files – in order – to CD. Creating such audio files is a cinch with HairerSoft's $25 Amadeus II (**www.hairersoft.com/amadeus.html**).

Just open the sound file in Amadeus (it can read AIFF, WAV, and MP3 files) and select Generate Marks from the Selection menu. In the resulting Generate Marks window, enter 10'00"000 in the Time Interval field to create markers that appear every ten minutes in the track. Enter something in the Text field that hints at the contents of the files – Sermon1, for example. Click on OK to dismiss the window.

From the same Selection menu, choose Split According To Marks. Click OK in the Split window that appears. In the resulting Save As sheet, designate a location for your split files, select AIFF from the Format pop-up menu, and click Save. Amadeus will split your file into ten-minute increments and sequentially number the segments – Sermon1 01, Sermon1 02, and Sermon1 03, for example.

Load these segments into iTunes and then into a playlist, ensure that they're in the proper order, and burn them to disc.

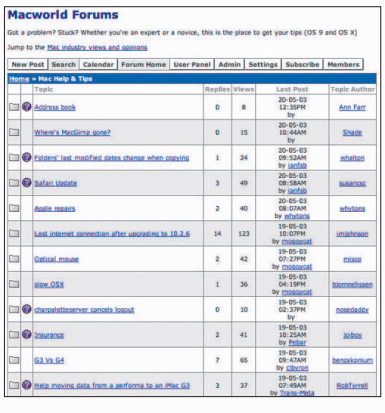
GET QUICK ANSWERS HERE

Macworld contributing editor Christopher Breen answer readers' questions and selects reader-submitted tips for this column.

Tips: Send your tips (include your address and phone number, and mark Q&A in the subject line of the email) to **qanda@macworld.co.uk**. We pay £25 for each tip published here. We regret that we cannot make personal replies.

Questions: If you have a question, the fastest way to an answer is via Macworld's forums: go to **www.macworld.co.uk/forums**. The Mac Help & Tips Forum should be your first port of call. You need to register to use the forums, but it's free.

The forums are where Macworld editors and a host of Mac know-it-alls make it our business to put your Mac back in the pink. Before you post your cry for help, search the forum for similar queries. It's likely that if you're having problems, then someone else has already encountered and maybe even solved them.



I have found that the problem lies with the Printer Styles option. In your earlier version of Quark, you may first need to go to Edit: Print Styles and then edit the Default option using the Set-up tab and apply a generic printer. Then click OK.

After that, you'll need to open each problem file using the earlier version of Quark, select Print, and then go to the Setup tab and check that the correct Generic Printer is still there, then use the capture settings option.

There is no need to print anything, just save the file again. You should then be able to open all files saved in this way using XPress 6.
Derek Lee

Peek-a-boo

TIP Press the ⌘ key on the little folder icon in a Finder window to display that folder's location on your Mac.

v Big vCards

TIP Most people realize that you can move vCards out of Address Book by selecting contacts and dragging them to the Desktop. What some overlook, however, is that it isn't necessary to create one vCard per contact. Address Book also allows you to create a vCard that holds multiple contacts. There are a couple of ways to go about this.

The first is to create a group, move the contacts you want to appear in the vCard into that group, and then drag that group to the Desktop.

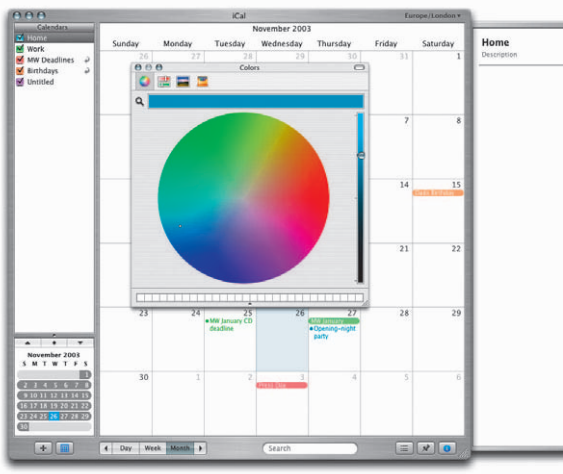
The second is to select your contacts and choose Export vCards from the File menu. This creates a single vCard file that includes the contacts you've selected. You can use a similar command with groups. Just select more than one group and choose Export Group vCard from the File menu to create a single vCard that holds all the contacts in the selected groups.

iCal category colours

Q I haven't found a way to create categories in iCal. The only thing I have come up with is to create a different calendar for each category. iCal then assigns colours to the calendars but I don't know how to assign the colour I want to the various calendars. Is it possible?
Joe Forbes

A Sure. If you don't have the latest version of iCal, download it from **www.apple.com/ical**. Once you have, here's how to go about assigning a custom colours to a calendar:

1. Create a new calendar by clicking the + icon at the bottom of the Calendars column.
2. If the Info drawer isn't showing, select Show Info from the Window menu (⌘-I).
3. In the drawer that appears, click the colour bar that appears in the upper right corner of the drawer and select Custom from the pop-up menu.
4. In the resulting Colors palette (below), pick a colour that pleases you and close the palette. **MW**



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Macworld Buyers' Guide

Apple divides its Macs into consumer and professional, and desktop and portable. But just because you fancy an iMac, don't rule out a portable – you might be surprised how much a PowerBook or iBook suits you. And some users may require a "pro" machine even if they class themselves as a "consumer". Decide what it is you want to do, and follow our advice here.

Desktop or portable

If you're often on the move, consider an iBook or PowerBook. You can easily hook each up to a larger monitor and separate mouse on a desk when you're back at base. They're easy to hide away, and with AirPort wireless networking, you can access the Internet up to 150-feet away from your telephone connection.

Apple's portables come loaded with every high-tech port needed, unlike most Windows laptops. The iBook is ultra-small, lightweight and, importantly for students, relatively impact-resistant – and even its 12-inch screen is still sizeable. The pro PowerBook G4 is super-thin and lightweight, and boasts screens from 12 to 17 inches. Its set of ports, including S-Video and Gigabit Ethernet, is impressive – as is its DVD-R SuperDrive.

Performance

Gauging speed by **processor** megahertz ratings is the easy – but incorrect – way to judge performance. You must take into account the amount of memory, the size and speed of the hard disk, graphics card and video memory, and size of cache.

The PowerPC G5 processor is a super-fast, next-generation 64-bit chip from IBM. If blistering performance at the bleeding edge is what you need, a Power Mac G5 is a must.

The PowerPC G4 processor from Motorola drives the Power Mac G4, PowerBook, iMac and eMac. It is specially optimized to speed-up selected programs via AltiVec technology.

Apple now uses two PowerPC processors: the **G4** and **G5**. Both include AltiVec technology that makes specially optimized software run even faster. The full potential of the G5 will be realized when software – and especially the operating system – is optimized for its 64-bit architecture. Currently, nearly all software runs at the G4's 32-bit level. That said, the G5 is still faster – but not enough to disregard the speedy G4, which has plenty of life left in it yet.

Word-processing, spreadsheets, email and Web browsing don't require the very fastest processors, but digital photography, video, and graphics do.

The more memory (**RAM**) you have on your Mac, the faster your applications will run, and you'll be able to keep more programs open at the same time. We recommend you upgrade the memory to *at least* 512MB of RAM.

Fitting extra RAM to a Mac is easy, but get your reseller to fit it if you're nervous. Depending on which model you buy, an extra 256MB can cost as little as £35 online (try **www.crucial.com/uk**), and adding 512MB more will set you back about £100. RAM for portables often costs more.

Cache is a memory subsystem that stores frequently used RAM data for even faster processing access. It's necessary because most computers suffer from performance bottlenecks that slow data down as it travels around the system. The Power Mac G5 features super-fast interconnects, and so requires less cache – the data speeds around fast enough without it.

Most consumers won't get near filling their **hard disk** with their AppleWorks files, digital snaps and Web downloads. Video-editors and iTunes users, however, will require a larger disk. Get as many gigabytes as possible. You can't upgrade the hard drives in the iBook, PowerBook, iMac or eMac, but you can add inexpensive external FireWire disks.

A **video card** connects a Mac to its display. Serious gamers and creative professionals should aim for one of the ATI Radeon or NVidia GeForce4 cards found in Power Macs, with 64MB of video RAM onboard. You can't later upgrade the video card in any of the other systems – but this shouldn't matter for many users.

Features

Apple differentiates its Mac models by type of optical drive: CD or DVD. All Macs come with at least a combination **DVD-ROM/CD-RW** drive that can read and writes CDs, and can play DVDs and DVD movies. The **DVD-R SuperDrive** does all that, and writes DVDs (DVD-R) of iMovies and digital snaps that play in domestic DVD players. The desktop Macs' SuperDrive writes to DVD at 4x-speed; the PowerBook's at 1x-speed.

All Macs come with top-of-the range connectivity features. Networking is at least 10/100BaseT **Ethernet**, with 1,000BaseT for Power Macs and the 15-inch and 17-inch PowerBooks.

All Macs offer at least two USB **ports** for peripherals, and at least one FireWire 400 (400Mbps) for digital video and peripherals. All now boast 480Mbps USB 2.0, except the eMac's older 12Mbps USB 1.1. USB 2.0 is compatible with USB 1.1 devices. The eMac's FireWire port makes the lack of USB 2.0 relatively meaningless. The 15-inch and 17-inch PowerBooks and Power Mac G5 include a FireWire 800 port (800Mbps).

All Macs ship with an internal 56Kbps modem. If you're frequently connected to the the Internet for long periods of time (especially in peak weekday times), you'll probably save call charges by upgrading to a faster **ADSL** broadband connection. You'll need to add an ADSL modem or router, and pay an ISP from around £23 a month for the faster access – but you pay no call charges no matter how long a Mac is connected, and you can use the phone at the same time. Unfortunately, not all areas are ADSL ready – check your phone number at: **www.bt.com/broadband**.

Apple's **AirPort** wireless-networking technology – based on either the IEEE 802.11b or 802.11g industry standards – lets you browse the Internet from anywhere in your home, up to 150 feet away from your phone line or Ethernet connection. AirPort uses radio waves, so it even works through walls. The latest Macs use **AirPort Extreme** (802.11g), boasting 54Mbps speeds, compared to the older AirPort's 11Mbps.

All Apple's new Macs come with the top-quality **iLife** suite of integrated digital-lifestyle software. **iMovie** is a simple but powerful digital-video editor

that works with FireWire. **iTunes** is music 'jukebox' software that can manage MP3 and AAC files, and burn audio CDs. **iPhoto** is a superb program that helps import, edit, organize and share digital photos. DVD-R SuperDrive models come with **iDVD**, which makes creating DVDs a doddle. Some Macs also ship with **AppleWorks** – a suite of easy-to-use business programs. The consumer Macs also ship with reference CDs and games.

Apple charges £69 per year for its online-based iTools, now called **.Mac.** You get an email address, 100MB of free Web space, simple Web-site templates, backup and virus protection.

Apple and its partners have made great efforts to ensure that Macs are largely **compatible with Windows PCs**. USB and FireWire help on connectivity. Emulation programs such as Virtual PC can run Windows software straight from a Mac.

Key applications, such as Microsoft Office, Adobe Photoshop and Macromedia Dreamweaver are all fully compatible with their Windows counterparts. You can swap Word, Excel and PowerPoint documents between the platforms.

Education pricing

Apple offers special pricing for educational users. Institutions such as schools and colleges get the biggest discounts. Teachers and students get about a 9 per cent discount via the online Apple Store – click on Education. **MW**

continues page 296

UPDATED 22/10/03

The main selling points of the **iBook** are its compact, lightweight, impact-resistant case and low price. Its processor has recently been upgraded to a G4, which makes it a very capable OS X machine.

The 256MB RAM is fine for OS X and a couple of programs, but performance will be boosted greatly by adding as much as you can. Via the Apple Store, the maximum 640MB of RAM will cost £120; via an online reseller, as little as £90.

The iBook ships with iMovie, iTunes and iPhoto, as well as the World Book encyclopedia and a couple of games. Word-processing, database, spreadsheet, presentations and graphics tools are provided by AppleWorks.

S-Video and composite video output require a £15 Apple Video Adaptor. Video mirroring to a projector or monitor is via the Apple VGA Display Adaptor.

Pros: Small enough to slip into a backpack, tough enough for schoolkids, the iBook is a more than capable and affordable consumer portable.

Cons: Requires more RAM. Ask for a larger hard-drive in the 12.1-inch model if you're an iTunes or iMovie user. The 14.1-inch model has a larger viewing area, but no more pixels and is half a kilo heavier.

All iBooks:
Video card: 32MB ATI Mobility Radeon 9200. **Resolution:** 1,024-x-768 pixels
Memory: 256MB (Max: 640MB)
Cache: 256K L2
USB 2.0: 2 **FireWire 400:** 1
Ethernet: 10/100BaseT **AirPort:** 54Mbps

■ Entry-level 12.1-inch TFT:
Processor: 800MHz G4
Hard disk: 30GB
Optical: DVD-ROM/CD-RW
Weight: 2.2kg **Price:** £849
Star Rating: ★★★★/8.4

■ Entry-level 14.1-inch TFT:
Processor: 933MHz G4
Hard disk: 40GB
Optical: DVD-ROM/CD-RW
Weight: 2.2kg **Price:** £999
Star Rating: ★★★★/8.4

■ High-end 14.1-inch TFT:
Processor: 1GHz G4
Hard disk: 60GB
Optical: DVD-ROM/CD-RW
Weight: 2.7kg **Price:** £1,199
Star Rating: ★★★★/7.8

UPDATED 22/10/03

For the consumer/education market, the **eMac** offers a fast G4 processor, large CRT screen (with surprisingly small footprint), multiple optical-drive options, and superb pricing. It measures up well against the iMac. Its built-in 17-inch CRT display offers more screen-space at larger resolutions than the 15-inch LCD iMac. It costs a lot less than the top-end 17-inch iMac. Many will be swayed, however, by the iMac's LCD screen (think long and hard about screen size) and flexibility.

It's fast enough for consumer and educational tasks (Web, email, word-processing, accounts, digital photography, iTunes, etc), and capable of running even pro applications such as Adobe Photoshop.

Add more RAM; at least 512MB is recommended. Via the Apple Store, this will cost up to £120; online, it can be found for £60. A tilt-&-swivel stand for the eMac costs £49.

The eMac ships with the Apple programs (iMovie, iTunes, iPhoto; and iDVD on the SuperDrive model), as well as the World Book encyclopedia, and Deimos Rising game. Word-processing, spreadsheet, database, presentations and graphics tools are provided by AppleWorks.

Pros: Top features at attractive prices. Impressive screen resolution.

Cons: Requires more RAM. USB 1.1 rather than much faster USB 2.0, but FireWire makes up for this. Not as flexible as iMac. Limited internal expandability (extra RAM and AirPort Card only), although external alternatives are plentiful.

All eMacs:
Processor: 1GHz G4
Screen: 17-inch CRT (1,280-x-960 pixels)
Video card: 32MB ATI Radeon 7500
Cache: 256K L2
USB 1.1: 3 **FireWire 400:** 2 **PCI:** 0
Ethernet: 10/100BaseT **AirPort:** 54Mbps

■ Entry-level:
Memory: 128MB (Max: 1GB)
Hard disk: 40GB
Optical: DVD-ROM/CD-RW
Price: £649
Star Rating: ★★★★/8.8

■ High-end:
Memory: 256MB (Max: 1GB)
Hard disk: 80GB
Optical: DVD-R SuperDrive (4x)
Price: £849
Star Rating: ★★★★★/9.2

UPDATED 08/09/03

The **iMac** boasts a "floating" flat-panel LCD screen that is held by a flexible chrome-pipe neck, allowing you to move it up and down and from side to side to gain a more comfortable viewing experience. LCD screens aren't just kinder to the neck, they're also easier on the eye than CRTs.

While the 15-inch LCD doesn't offer as large a viewing area as the eMac's, the widescreen 17- and 20-inch LCDs are particularly handy for multi-paletted pro applications. Inevitably, the LCD screens make the iMac more expensive than the CRT-based eMac – but offer compelling reasons for the extra outlay. The dome-like base also saves valuable desk space.

The iMacs ship with the great Apple programs (iMovie, iTunes, iPhoto; and iDVD on the SuperDrive model), encyclopedia, games, and AppleWorks.

Pros: Nothing beats the iMac on looks, and the adjustable LCD screen is a real improvement on the static CRT – although the eMac's maximum resolution is greater than the 15-inch G4 iMac's.

Cons: Like the eMac, the G4 iMac has limited internal expandability (extra RAM and AirPort Card only), although inexpensive external alternatives are plentiful.

All G4 iMacs: **Ethernet:** 10/100BaseT
USB 2.0: 3 **FireWire 400:** 2 **PCI:** 0
Hard disk: 80GB **AirPort:** 54Mbps
RAM: 256MB (Max: 1GB) **Cache:** 256K L2
Apple Pro Speakers: Included.

■ 15-inch:
Processor: 1GHz G4
Optical: DVD-ROM/CD-RW
Screen: 15-inch LCD (1,024-x-768 pixels)
Video card: 32MB NVidia GeForce4 MX
Price: £999
Star Rating: ★★★★/8.4

■ Widescreen 17-inch:
Processor: 1.25GHz G4
Optical: DVD-R SuperDrive (4x)
Screen: 17-inch LCD (1,440-x-900 pixels)
Video card: 64MB GeForce FX 5200 Ultra
Price: £1,449
Star Rating: ★★★★/8.6

■ Widescreen 20-inch:
Processor: 1.25GHz G4
Optical: DVD-R SuperDrive (4x)
Screen: 20-inch LCD (1,680-x-1,050 pixels)
Video card: 64MB GeForce FX 5200 Ultra
Price: £1,749
Star Rating: ★★★★/8.7

UPDATED 08/10/03

Despite the arrival of the Power Mac G5, Apple is still selling the minitower **Power Mac G4**. Prices are reasonable, but you don't get the ultimate in performance.

Power users should seriously consider saving for the Power Mac G5, which is far more advanced and potentially a lot more powerful.

The stop-gap Power Mac G4 range offers older specs than those available previously. There's no FireWire 800, USB 2.0, or AirPort Extreme/Bluetooth built in.

But it does offer something that the G5 doesn't: the ability to boot in Mac OS 9. This may interest musicians and designers who are still waiting for OS X-compatible plug-ins. This is the only reason to consider the Power Mac G4 these days.

Pros: The entry-level model is an inexpensive pro-tower that offers OS 9 bootability – still important to some users. The dual-processor machines are well-priced for OS X-fearing power users.

Cons: Uses older specifications than previous G4s; superseded by G5.

All G4 Power Macs:
USB 1.1: 2 **PCI:** 4
FireWire 400: 2
System Bus: 167MHz
Ethernet: 10/100/1000BaseT
AirPort: 11Mbps

■ Entry-level:
Processors: 1 x 1.25GHz G4
Memory: 256MB DDR (Max: 2GB)
Disk: 80GB **Cache:** 1MB L3
Optical: DVD-ROM/CD-RW
Video card: 64MB ATI Radeon 9000 Pro
Price: £999
Star Rating: ★★★★/7.4

■ Mid-range:
Processors: 2 x 1.25GHz G4
Memory: 256MB DDR (Max: 2GB)
Disk: 80GB **Cache:** 2MB L3 per chip
Optical: DVD-ROM/CD-RW
Video card: 64MB ATI Radeon 9000 Pro
Price: £1,239
Star Rating: ★★★★/7.5

■ High-end:
Processors: 2 x 1.25GHz G4
Memory: 512MB DDR (Max: 2GB)
Disk: 80GB **Cache:** 2MB L3 per chip
Optical: DVD-R SuperDrive (4x)
Video card: 64MB ATI Radeon 9000 Pro
Price: £1,489
Star Rating: ★★★★/7.5

POWERBOOKS UPDATED 16/09/03

Its lightweight case and speedy processor make the **PowerBook G4** a genuine alternative to the desktop Power Mac. There are two compact 12.1-inch screen models, two 15.2-inch widescreen, and one large 17-inch widescreen. All now feature the lightweight anodized-aluminium case.

G4 processor speeds start at 1GHz – easily fast enough for pro applications, and the video cards boast up to 64MB of video RAM. Each size has a slot-loading DVD-R SuperDrive model – although this runs slower than that in desktop models.

If you fancy the iBook for its compact size and light weight, but demand more power, the **12-inch** PowerBook is a great choice if you're frequently on the move. Digital video-out is via a mini-DVI port. Connect to an external Apple LCD display with a £75 DVI-to-ADC adaptor. It lacks fastest Gigabit Ethernet – although this won't bother many.

Mobile computers are all about compromise (size against performance and features), and the middle model will appeal to those who can take a little extra weight for the extra screen space. Now that the **15-inch** model is in the aluminium case, with AirPort Extreme and FireWire 800, it is the pick of the range.

The **17-inch** PowerBook boasts the largest laptop screen on earth, and will appeal to video or music pros, who regularly need to take their computers on the road. Size isn't really an issue when travelling, but frequent laptop luggers will be put off by its weight – although it's reasonable for such a large-screen laptop.

All models support dual-screen display using external monitors.
Pros: Lightweight, slim and stylish, there's a PowerBook G4 model for everyone: from compact to giant; USB 2.0 on all models; 1.25GHz 15-inch and 17-inch include backlit keyboard.
Cons: 12-inch has no FireWire 800; 17-inch shows its size by weight.

Both 12.1-inch PowerBooks:
Processor: 1GHz G4 **AirPort:** 54Mbps
Memory: 256MB (Max: 1.25GB)
Cache: 512K L2 **Hard disk:** 40GB
Video card: 32MB NVidia GeForceFX 5200
Resolution: 1,024-x-768 pixels
USB 2: 2 **FireWire 400:** 1 **Weight:** 2.1kg
Ethernet: 10/100BaseT **S-Video:** 1

■ DVD-ROM/CD-RW **Price:** £1,299
Star Rating: ★★★★/8.4

■ DVD-R SuperDrive (1x) **Price:** £1,449
Star Rating: ★★★★/8.6

Both 15.2-inch PowerBooks:
Cache: 512K L2 **Weight:** 2.49kg
Resolution: 1,280-x-854 **AirPort:** 54Mbps
USB 2.0: 2 **FireWire 400:** 1
PC Card: 1 **FireWire 800:** 1
Ethernet: 10/100/1000BaseT **S-Video:** 1
Video card: 64MB ATI Radeon 9600

■ DVD-ROM/CD-RW 15.2-inch:
Processor: 1GHz G4 **Hard disk:** 60GB
Memory: 256MB (Max: 2GB)
Price: £1,599 **Star Rating:** ★★★★★/9.0

■ DVD-R SuperDrive (1x) 15.2-inch:
Processor: 1.25GHz G4 **Hard disk:** 80GB
Memory: 512GB (Max: 2GB)
Price: £1,999
Star Rating: ★★★★★/9.0

■ DVD-R SuperDrive 17-inch:
Processor: 1.33GHz G4
AirPort: 54Mbps
Memory: 512MB (Max: 1GB) **PC Card:** 1
Cache: 512K L2 **Hard disk:** 80GB
USB 2: 2 **FireWire 400:** 1 **FireWire 800:** 1
Ethernet: 10/100/1000BaseT **S-Video:** 1
Video card: 64MB ATI Radeon 9600
Resolution: 1,440-x-900 pixels
Optical: DVD-R SuperDrive (1x)
Weight: 3.08kg
Price: £2,399
Star Rating: ★★★★★/9.0

UPDATED 18/11/03

The **Power Mac G5** is the spearhead of Apple's attack on the PC workstation market – packed with next-generation technologies, and running IBM's extremely powerful 64-bit G5 processor.

Its phenomenal power isn't just down to the processor. Performance bottlenecks are eliminated by an industry-best frontside bus running at up to 1GHz, and HyperTransport interconnects.

Hard drives are Serial ATA, supporting 1.5Gbps throughput per channel.

All this speed generates a lot of heat, and Apple has created a smart cooling system with up to nine fans and four thermal zones. As fans can slow down depending on the operation in progress, sound levels are reduced, making the Power Mac G5 much quieter than the G4. The addition of USB 2.0 ports means that the Power Mac G5 can support many peripherals previously pegged back at slower USB 1.1 speeds.

The top Power Macs feature two G5 chips – making it the perfect machine for multiprocessor-optimized applications such as Adobe Photoshop and Final Cut.

The ability to add up to 8GB of super-fast DDR RAM is another plus for OS X users – particularly for creative professionals.

As a pro system, it ships with Gigabit Ethernet for faster networking – although you'll have to upgrade your LAN's switches to get all the benefits.

The case is well designed for easy access and quick upgradability. It's even easier to fit RAM and drives than in the Power Mac G4 – you don't need any tools; everything slides and clicks into place with ease.

The Power Mac ships with the Apple iLife programs (iMovie, iTunes, iPhoto; and iDVD).
Pros: Super-fast; next-generation technologies; up to 8GB RAM; DVD-R SuperDrive; digital audio; quiet.
Cons: No good if you want to boot in Mac OS 9, but Classic works fine.

All G5 Power Macs: **USB 2.0:** 2 **FireWire 400:** 2 **FireWire 800:** 1 **AGP 8X Pro:** 1
Ethernet: 10/100/1000BaseT **AirPort:** 54Mbps

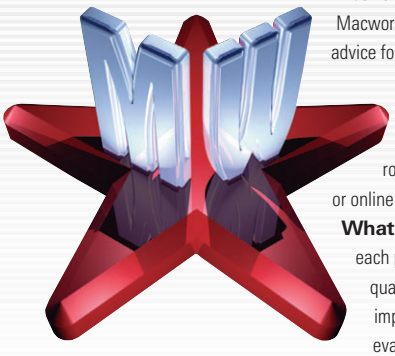
■ Entry-level:
Processors: 1 x 1.6GHz G5
Frontside Bus: 800MHz
Memory: 256MB DDR (Max: 4GB)
Hard disk: 80GB Serial ATA
Optical: DVD-R SuperDrive (4x)
PCI: 3 x 33MHz
Video card: 64MB GeForce FX 5200 Ultra
Price: £1,399
Star Rating: ★★★★/8.5

■ Mid-range:
Processors: 2 x 1.8GHz G5
Frontside Bus: 900MHz
Memory: 512MB DDR (Max: 8GB)
Hard disk: 160GB Serial ATA
Optical: DVD-R SuperDrive (4x)
PCI-X: 1 x 133MHz; 2 x 100MHz
Video card: 64MB GeForce FX 5200 Ultra
Price: £1,899
Star Rating: ★★★★★/9.0

■ High-end:
Processors: 2 x 2GHz G5
Frontside Bus: 1GHz
Memory: 512MB DDR (Max: 8GB)
Hard disk: 160GB Serial ATA
Optical: DVD-R SuperDrive (4x)
PCI-X: 1 x 133MHz; 2 x 100MHz
Video card: 64MB ATI Radeon 9600 Pro
Price: £2,299
Star Rating: ★★★★★/9.0

Macworld Star Ratings

Recommendations you can trust



Macworld's Star Ratings section lets you compare Macintosh products by providing summaries of Macworld's authoritative hardware product reviews from the past year. It includes detailed buying advice for each product category and a fuller description of our Editors' Choice winners. Alongside the list of Macworld Star Ratings are handy tips and further product buying advice.

Star Ratings for Mac systems are published in the Mac Systems Guide – see earlier. Subscribers can go to **www.macworld.co.uk** to explore our comparative feature round-ups and reviews for both software and hardware. Listings tell you which back-issue, or online archive, to search.

What the scores mean The number of stars indicates the product's level of quality; each product also gets a numeric score that provides a more exact assessment of the product's quality within that level. We evaluate seven factors to derive the star rating: feature set; design implementation; performance; reliability; ease of use; innovation; and value. We take these evaluations, weight their importance for each product class, and calculate the final score.

REAL PRODUCTS	REAL RATINGS	
★★★★★	9.0 to 10.0	Outstanding
★★★★	7.0 to 8.9	Very good
★★★	5.0 to 6.9	Good
★★	3.0 to 4.9	Flawed
★	0.0 to 2.9	Unacceptable

Macs are used in most recording studios because a Mac's PowerPC processor is more efficient than Intel chips running at the same speed, so it can handle extra channels and signal processing, or both simultaneously. While **digital-audio** plays digitized recordings, making demands of your disk-drive and system bus, **MIDI** (Musical Instrument Digital Interface) behaves more like a word processor – with file sizes to match.

If you're still linking Macs with 10BaseT **Ethernet**, move to the faster 100BaseT, available on all current Macs. The latest Power Macs and PowerBooks come with 1000BaseT (Gigabit) Ethernet, which is even faster than 100BaseT.

Apple's **AirPort Extreme** is a fast wireless-networking technology. Add a £59 (2.0) or £79 (Extreme) card, and you can network and browse the Web cablelessly up to 150ft away from your £149 or £189 Base Station. AirPort works with all current Macs, and is now a viable alternative to wire-based networking. If you can, upgrade your Internet connection to **broadband**, via ADSL, cable or satellite. You'll need either an ADSL router (recommended) or a special modem. Add extra peripherals Macs with a **USB** or **FireWire hub**.

It's a snap to load digital photos into a Mac. With **iPhoto**, digital photography moves to an even higher level. **Resolution** of digital cameras is measured in horizontal and vertical pixels: 1,024-x-768, etc. High-resolution images show a greater level of detail – and can be more readily enlarged – than images with fewer pixels. Manufacturers also list resolution in terms of the total number of pixels. For example, 1,280 horizontal by 960 vertical pixels create a total of 1.2 million pixels (1,280-x-960 = 1.2 megapixels.

Any camera with an aggregate resolution of over 1 million pixels is referred to as a **megapixel** camera. If you plan to use images on the Web, you can get by

AUDIO / MUSIC

★★★★/7.0	**AV320**, Archos, *01264 366 022*, £560 (inc. VAT). Audio and video in your hand. Outputs to TV, but not too easy to use.	*Nov 2003*
★★★★/8.5	**iPod 10GB**, Apple, £249 (inc. VAT). Apple's MP3 super-slim player holds 2,500 tunes with solid-state controls.	*Nov 2003*
★★★★★/9.0	**iPod 20GB**, Apple, £299 (inc. VAT). Super-slim player holds 5,000 tunes, has solid-state controls, and dock.	*Nov 2003*
★★★★★/9.2	**iPod 40GB**, Apple, £399 (inc. VAT). Super-slim player holds 10,000 tunes, has solid-state controls, and dock.	*Nov 2003*
★★★★/8.8	**JBL Creature**, Harman @ Computers Unlimited, *020 8200 8282*, £99. Speakers look great, but the sound quality could be better.	*March 2003*
★★★★★/9.2	**Mbox for OS X**, Digidesign, *01753 653 322*, £379. Records, edits and mixes multiple tracks, but needs free USB port on Mac.	*March 2003*
★★★★/7.5	**Podio**, MacAlly, *01392 426 473*, £17.57 (inc. VAT). White iPod earbuds with tangle-free retractable cable.	*Oct 2003*
★★★★/7.7	**Podio Pro**, MacAlly, *01392 426 473*, £58.69 (inc. VAT). White iPod headphones with noise-cancelling feature, and flight adaptor.	*Oct 2003*
★★★★★/9.0	**PowerWave**, Griffin @ AM Micro, *01392 426 473*, £99 (inc. VAT). Excellent-quality audio and includes software.	*March 2003*
★★★★/8.7	**SliMP3**, Slim Devices @ Multitask Computing, *01322 380 023*, £209 (inc VAT). Stylish wireless functionality, MP3 streamer.	*March 2003*
★★★/6.6	**Voice Recorder**, Belkin, *00800 2235 5460*, £39 (inc. VAT). Nifty microphone for dock-enabled iPods.	*Expo 2003*

CONNECTIVITY / NETWORKING

Servers, routers, software, remote access, SCSI cards, emulators, hubs, adaptors…

★★★★/8.8	**AMX-64**, ADSL Nation, *01865 761 114*, £99 (inc VAT). Affordable 4-port ADSL router that's easy to set-up.	*Expo 2002*
★★★★/8.5	**Cayman 3341**, Netopia, *020 8358 5858*, £99 (inc VAT). Affordable 2-port ADSL router that's easy to set-up.	*Sept 2003*
★★★★/7.5	**Cayman 3346**, Netopia, *020 8358 5858*, £151 (inc VAT). 4-port ADSL router that's easy to set-up, but expensive.	*Sept 2003*
★★★★/8.8	**DG814**, Netgear, *020 7216 0014*, £95 (inc VAT). 4-port ADSL router that's easy to set-up.	*Expo 2002*
★★★★/8.5	**GSW-8**, Corega, *08705 168 626*, £115 (inc VAT). 8-port Gigabit Ethernet switch.	*Sept 2003*
★★★★/8.0	**NetShuttle DSL**, Hermstedt, *020 7421 1500*, £199 (inc VAT). 1-port ADSL router is easy to set-up.	*Expo 2002*
★★★★/7.4	**Prestige 645R**, *0118 981 0600*, £170 (inc VAT). ADSL router scores well on security, and design, but set-up is Windows-centric.	*Expo 2002*
★★★★/7.7	**Prestige 652**, *0118 981 0600*, £351 (inc VAT). ADSL router offers cast-iron security and is priced accordingly.	*Expo 2002*
★★★★/7.5	**SpeedTouch 510**, *01295 222 170*, £163 (inc VAT). Stylish and secure ADSL router, let down by hard-to-follow set up.	*Expo 2002*
★★★★/7.5	**SpeedTouch 530**, *01295 222 170*, £151 (inc VAT). Same as the 510, except it has just one Ethernet port, and a USB port.	*Expo 2002*
★★★★/8.8	**SpeedTouch 330**, Alcatel, *01295 222 170*, £79 (inc VAT). Stylish, compact ADSL modem that's Mac OS X-friendly.	*Expo 2002*
★★★★/8.7	**StingRay**, Hermstedt, *020 8200 8282*, from £2,895 (ex VAT). Cheap to run, secure and easy-to-use file-transfer solution.	*Feb 2003*

DIGITAL CAMERAS / CAMCORDERS / VIDEO-CON

Consumer and professional; still and video; Apple's iPhoto. All prices include VAT.

Digital-still cameras

★★★★/8.1	**007 JB1**, Digital Dream, *01304 248 200*, £69. Zippo-sized 0.3-megapixel gadget-camera – basic quality, but tons of fun.	*Expo 2003*
★★★/6.7	**Camedia C-350**, Olympus, *0800 072 0070*, £249. Easy to use and traditionally styled 3.2-megapixel model.	*Aug 2003*
★★★/6.9	**C-740 Ultra Zoom**, Olympus, *020 7253 2772*, £299. 3.2-megapixel unit offering excellent images, but poor documentation.	*Dec 2003*
★★★★/7.4	**Coolpix 3100**, Nikon, *020 8481 6875*, £279. A 3.2-megapixel model offering intuitive menus and manual white balance.	*Aug 2003*
★★★/6.8	**Cyber-shot DSC-P8**, Sony, *08705 111 999*, £350. Compact 3.2-megapixel camera with movie mode but no manual controls.	*Aug 2003*
★★★/6.8	**Cyber-shot DSC-P72**, Sony, *08705 111 999*, £300. Same as DSC-P8 but lacking controls over sharpness and saturation.	*Aug 2003*
★★★/6.7	**Cyber-shot DSC-V1**, Sony, *08705 111 999*, £546. Well-designed 5-megapixel model; delivers noisy shots, though.	*Dec 2003*
★★★/6.8	**Dimage F300**, Minolta, *01908 200 400*, £429. Compact 5-megapixel camera with full manual controls.	*Aug 2003*
★★★/6.5	**Dimage Xt**, Minolta, *01908 200 400*, £249. Slimline 3.2-megapixel unit with easy-to-use movie mode.	*Dec 2003*
★★★★/8.7	**EOS 10D**, Canon, *08705 143 723*, Body-only, £1,499. Great digital SLR with well-balanced mix of features, comfort and quality.	*Oct 2003*
★★★★/8.6	**EOS 300D**, Canon, *08705 143 723*, £999. True SLR with removable lenses and low price, but no rear-mounted control-wheel.	*Expo 2003*
★★★★/8.6	**FinePix A303** Fujifilm, *020 7586 1477*, £449. SuperCCD offers an effective resolution of six megapixels.	*Sept 2003*
★★★★/7.8	**FinePix F410 Zoom** Fujifilm, *020 7586 1477*, £299. Decent 3-megapixel entry-level with 3x zoom.	*Sept 2003*
★★★★/8.5	**FinePix F601 Zoom** Fujifilm, *020 7586 1477*, £499. SuperCCD offers an effective resolution of six megapixels; funky look.	*Sept 2003*
★★★★/7.7	**IXUS II**, Canon, *08705 143 723*, £369. Nicely designed 3.2-megapixel model with movie mode but no red-eye.	*Aug 2003*

★★★★/8.2	**IXUS 400**, Canon, *08705 143 723,* £449. Compact, well designed 4-megapixel camera with movie mode but limited manual controls.	*Aug 2003*
★★★/6.6	**Lumix DMC-FZ1**, Panasonic, *08705 357 357,* £329. Stunningly fast 2-megapixel unit that unfortunately lacks full manual controls.	*Dec 2003*
★★★★/8.5	**PowerShot A80**, Canon, *08705 143 723,* £349. Responsive 4-megapixel camera that boasts spanking image-quality.	*Expo 2003*
★★★★/8.0	**PowerShot G5**, Canon, *08705 143 723,* £628. An excellent 5-megapixel camera with add-on lens and flash support.	*Dec 2003*
★★★★/8.0	**PowerShot S50**, Canon, *08705 143 723,* £549. A 5-megapixel model with full manual controls and a movie mode.	*Aug 2003*
★★★★/8.6	**Photosmart 735**, HP, *08705 47 47 47,* £199. A cheap-as-chips, no-nonsense 3.2-megapixel camera with 3x optical zoom.	*Nov 2003*

Consumer digital camcorders

★★★★/8.0	**DM-MV5i,** Canon, *0800 616 8883*, £850. This camcorder has good specs, but is £50-£100 more than equally specced models.	*March 2003*
★★★★/8.5	**DM-MX2i,** Canon, *0800 616 8883*, £1,149. With optical stabilization, this camcorder delivers crisp pictures – at a price.	*March 2003*
★★★★/7.5	**DS60 DV Camcorder**, Panasonic, *08705 357 357,* £449. Budget model offering decent quality for the price.	*Aug 2003*
★★★★★/9.0	**DVX100**, Panasonic Broadcast, *08700 100 464,* £3,195. Film-style aesthetics without the Hollywood budget.	*Nov 2003*
★★★★/8.0	**GR-D70**, JVC, *0870 300 5000,* £600. Low-price palmcorder that offers DV-in and -out, and excellent image-quality.	*Aug 2003*
★★★★/8.5	**GR-DV700**, JVC, *0870 300 5000,* £750. Midrange, easy-to-use 1.33-megapixel camcorder. Excellent for the price.	*Aug 2003*
★★★/6.5	**GR-PD1**, JVC, *0870 330 5000*, £2,500. High Definition camcorder with 16:9 mode and MPEG-2 recording. Little Mac support.	*Expo 2003*
★★★★/8.6	**iSight**, Apple, £119. Idiot-proof, portable webcam that ties in well with iChat AV.	*Sept 2003*
★★★★/8.7	**MVX150i**, Canon, *08705 143 723*, £899. This camcorder offers great image quality, 16x zoom and impressive features.	*Sept 2003*
★★★★/8.3	**NV-GS5**, Panasonic, *0870 357 357,* £850. With a decent resolution and variable-speed zoom, the GS5 only lacks a stills mode.	*March 2003*
★★★★/8.6	**NV-GX7**, Panasonic, *0870 357 357,* £750. Excellent image quality, a stills mode and night shooting.	*March 2003*
★★★★/8.7	**DCR-PC8**, Sony, *020 7365 2947*, £549. Great little camcorder that's a joy to use; requires FireWire cable.	*Sept 2003*
★★★★/8.3	**VP-D130**, Samsung, *0800 521 652,* £700. This cheap camcorder is for those who want to keep it simple.	*March 2003*

DISPLAY

Monitors, projectors and video cards.

17-inch flat-panel LCD displays

★★★★/8.8	**17-inch Studio Display**. Apple, *0800 039 1010*, £549 (inc VAT). Apple's 1,280-x-1,024-pixel screen is big as well as beautiful.	*July 2002*
★★★★/7.7	**C783,** Microtek, *01372 844 880*, £553. Good-value if-dull flat-panel offering built-in speakers.	*July 2002*
★★★★★/8.8	**Gallery 1740,** Formac, *020 8533 4040*, from £528 (inc VAT). Great-looking 17.4-inch 1,280-x-1,024-pixel ADC monitor.	*July 2002*
★★★★/7.7	**SyncMaster 171S**, Samsung, *0800 521 652*, £489. Compact, lightweight LCD screen that's nicely styled.	*July 2002*

18-inch flat-panel LCD displays

★★★★/7.7	**FlexScan L685-EX,** Eizo, *01483 719 500*, £1,089. Compact 18.1-inch 1,280-x-1,024-pixel LCD monitor.	*July 2002*
★★★★/8.6	**MultiSync LCD 1880SX,** NEC, *0801 201 160*, £959. Compact, attractive 18.1-inch 1,280-x-1,024-pixel LCD monitor.	*July 2002*
★★★★/8.6	**photon18blue**, LaCie, *020 7872 8000*, £899. 18-inch 1,280-x-1,024-pixel LCD screen boasting great image quality.	*July 2002*
★★★★/7.3	**SDM-S81**, Sony, *08705 111 999*, £859. Attractive two-tone grey screen that suffers for lack of digital connections.	*July 2002*

19-22-inch flat-panel LCD displays

★★★★★/9.2	**Cinema Display HD**, Apple, *0800 039 1010*, £1,699 (inc VAT). **Editors' Choice: High-end flat-panel displays** Excellent high-definition 1,920-x-1,200-pixel screen that's suitable for use with high-end digital-video editing.	*March 2003*
★★★★★/9.0	**Cinema Display**, Apple, *0800 039 1010*, £1,009 (inc VAT). Apple's 20-inch screen has a 1,680-x-1,050 wide-screen resolution.	*March 2003*
★★★★★/9.0	**Gallery 2010,** Formac, *020 8533 4040*, £1,174 (inc VAT). Stylish, affordable 20.1-inch flat-panel display.	*Expo 2002*
★★★★/8.5	**FlexScan L767,** Eizo, *01483 719 500*, £734. Affordable 19-inch LCD that comes with a digital interface.	*June 2003*
★★★★/8.3	**FlexScan L985-EX,** Eizo, *01483 719 500*, £1,561. Monster 21-3-inch LCD that's pricey, but is of undeniable quality.	*June 2003*
★★★★/8.5	**MultiSync LCD1920NX,** NEC, *0801 201 160*, £750. A good-value 19-inch LCD that offers a digital interface.	*June 2003*
★★★★/8.3	**MultiSync LCD2080UX,** NEC, *0801 201 160*, £1,048. 20.1-inch LCD that's well-priced, and includes an auto-adjust feature.	*June 2003*
★★★★/8.7	**P922E,** CTX, *01923 810 800*, £545 (inc. VAT). Inexpensive 19-inch LCD with USB 2.0 hub.	*Oct 2003*
★★★★/8.6	**Photon20Vision**, LaCie, *020 7872 8000*, £1,404. Quality 20.1-inch flat panel with calibration option, desk clamp and hood.	*June 2003*

21-inch+ CRT displays

★★★★★/9.0	**Diamond Pro 2070SB,** Mitsubishi, *020 7202 6300*, £499. **Editors' Choice: 21-inch+ CRT displays** This monitor offers top features at a great price. It can display at 2,048-x-1,536-pixels at 85Hz.	*Jan 2003*
★★★★/8.7	**electron22blue III**, LaCie, *020 7872 8000*, £699. Aperture-grille offering great image quality, but the competition is catching up.	*Jan 2003*
★★★★/7.0	**FlexScan T966,** Eizo, *01483 719 500*, £659. 21-inch aperture-grille at a reasonable price.	*Jan 2003*
★★★★/8.3	**Multiscan E520,** Sony, *08705 111 999*, £769. This is a high-quality monitor, but you pay extra for the Sony brandname.	*Jan 2003*
★★★★/7.0	**Reference Calibrator V,** Barco@Typemaker, *0221 604 1234*, £3,250. Pricey, but colour-accurate display is losing edge on rivals.	*Jan 2003*
★★★★/8.3	**SM1200NF**, Samsung, *0800 521 652*, £489. The screen looks dated, but it's feature rich with a decent resolution..	*Jan 2003*
★★★★/7.7	**VisionMaster Pro 513,** Iiyama, *01438 745 482*, £369. A great choice if you want cheap and cheerful.	*Jan 2003*

Projectors

★★★★/7.6	**LiteShow**, InFocus, *0800 028 6470*, £349. AirPort connection to the LP120 projector.	*Dec 2003*
★★★★★/9.1	**LP120**, InFocus, *0800 028 6470*, £1,999. Tiny, fully featured 1,100 ANSI lumen projector – the best there is.	*Dec 2003*

Display/TV hardware

★★★★/8.2	**Eye TV**, El Gato @ CU, *020 8358 5858*. Easy-to-set-up method of watching television on your Mac.	*May 2003*
★★★★/7.1	**Spyder with PhotoCal**, Pantone@ AM Micro, *01392 426 473*. Easy to use monitor-calibration hardware.	*Jan 2003*

INPUT

Mice, trackballs, digital tablets… All prices include VAT.

★★★★/8.7	**Desktop Navigator**, Logitech, *01753 870 900*, £79. Affordable, attractive wireless keyboard.	*June 2003*
★★★★/8.3	**MX700**, Logitech, *01753 870 900*, £49. Cordless seven-button scroll-wheel mouse that comes with recharging cradle.	*Expo 2002*
★★★★/8.2	**Graphire3 Studio XL**, Wacom, *Computers Unlimited, 020 8358 5858*, £179. A5 tablet with stylus and scroll-wheel mouse.	*Dec 2003*
★★★★/8.2	**Ultra Cordless Optical Mouse**, Gyration, *0870 442 8668*, £79. Cordless motion-sensing mouse is ideal for presentations.	*Expo 2002*
★★★★/7.3	**Wireless Keyboard**, Apple, *0800 039 1010*, £59. Bluetooth keyboard complete with 128-bit encryption.	*Dec 2003*

with a low-res camera. If you want to use the images in print at anything greater than postage-stamp size, at least a two-megapixel camera is a must. Look for optical resolution; ignore interpolated resolution.

Select a camera that offers the option of switching between high-res/fewer shots and lower-res/many shots. SmartMedia **storage** cards are cheaper but flimsier, and offer less storage than CompactFlash cards. Sony cameras use MemorySticks. Other formats include SecureDigital, Multimedia, and the tiny XD Picture card. Digital cameras tend to be **battery** hogs, so rechargeable batteries are a must. NiCad batteries are cheaper than NiMH batteries, but the latter last longer between charges.

Those who don't own a **digital-video camcorder** are missing out on one of the best reasons to own a Mac. All of Apple's Mac models, even the least-expensive iMac, have built-in FireWire ports and iMovie software, making the creation of professional-looking videos for business, home, and school projects very easy.

Most camcorders use MiniDV tapes, tiny cassettes that store 60 minutes of high-quality digital video in standard-play mode or 90 minutes in long-play mode. Sony's MicroMV digital-video format is not yet supported. Once you record video, you can upload it to a Mac via a **FireWire** cable and edit it using either Apple's **iMovie** or a higher-end program such as Apple's **Final Cut Pro/Express**. Add effects with **Adobe After Effects**.

The DV format – used by DV, MiniDV, and Digital 8 cassettes – stores video at more than twice the resolution of standard VHS or 8mm tapes, and it stores 25 per cent more information than S-VHS or Hi8 tapes. Colour fidelity and noise immunity are also markedly better on DV tapes than on analogue tapes, resulting in breathtaking video quality. And because the recorded video is digital, you can upload it to your Mac or copy it to another DV tape without any loss of quality.

Aim for a FireWire digital camcorder with both **DV-In** and **-Out**, as this means you can transfer your edited movie from your Mac back to MiniDV tape.

The first decision you'll need to make is whether to get a flat-panel display, based on liquid crystal display (**LCD**) technology, or a cathode-ray tube (**CRT**) monitor.

CRTs are cheaper and offer higher colour vibrancy and accuracy than LCDs. If low price is your biggest requirement, or if you're looking for a display for publishing or design work, go with a CRT.

An LCD display's advantage is unparalleled sharpness and ultra-thin profile. If space considerations, or a cutting-edge look, top your list of concerns, and you can afford it, today's flat-panel displays are worth a serious look. With a flicker-free screen and tiny footprint, an LCD is easy on the eyes in more than one sense.

Today's monitors offer one or more of the following connections: VGA, DVI, or ADC. A screen hooked-up to a digital DVI or ADC connector offers sharper, clearer images than those connected via an analogue VGA connector. Analogue LCDs can display "noise", a by-product of converting the video signal from digital to analogue and then back again. The ADC (Apple Display Connector) port combines a DVI signal with power and USB. The single cable leaves your desk relatively clutter free, but ADC is available only on cards shipping in Power Mac G4s and Cubes released after August 2000.

Except for the Apple displays, most monitors can plug directly into an analogue VGA connector, making them compatible with current and older desktops and laptops. Some models offer both analogue and digital inputs. These are the most compatible, as they can plug

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into DVI or standard VGA connectors and, with a third-party adaptor, into ADC ports. The Apple displays require the ADC port available on only recent G4 and G5 desktops.

When comparing the image size of displays, be sure to check the **viewable image size**, not the claimed size of the CRT or flat-panel. The **resolution** of a monitor is expressed in horizontal and vertical pixel dimensions, and range from 640-x-480 pixels to 1,600-x-1,200 pixels and beyond. The higher the resolution, the more you will be able to see on-screen. The more inches, the larger the pixels.

A CRT's **dot pitch** measures how close adjacent phosphor dots (or stripes on aperture-grille CRTs) are to each other. In general, the smaller the dot pitch, the sharper (and more expensive) the display will be.

On CRT monitors, a low **refresh rate** – how many times your Mac sends a fresh copy of the screen image to your display – implies flicker, a major cause of eyestrain. The higher the refresh rate, the better. LCDs don't suffer from flicker at all.

High-end monitors may also come with **calibration** software and devices for ensuring accurate colour for publishing and design applications.

Input devices come in many shapes and sizes. Go for an **optical mouse**, which are less prone to wear-&-tear than the old-style mice. Apple's mouse is good, but lacks extra buttons and a scroll wheel – fantastic for zipping through documents and Web pages.

Graphics tablets are now very advanced and often come with pressure-sensitive pens, which enable more control when using natural-media graphics software like Painter. The harder you press, the thicker the line. They take some getting used to, but many artists swear by them – not at their mice!

The range of printers available is huge: fast network printers, for business, to slower-but-cheap colour printers for home.

Decide what you need from your printer, look at your budget and, most importantly, look at the **output** of the printer. The only way to avoid disappointment is to have a dealer print out a page in front of you. Remember that the test prints shown in shops are often done on expensive glossy paper.

Speed is also an issue. At home, waiting 15 minutes for a colour page to print may be acceptable. In the office, however, time is money – meaning that faster printers are needed.

Home/small office use: A4 Inkjets are the cheapest printers to buy, and can output near-photographic quality prints – great with digital cameras. If you mainly run-out black-&-white prints of letters and so forth, consider a mono laser printer (which cost from around £250).

Business use: Fast, networkable mono lasers cost from £500. Decent colour lasers will set you back at least £1,000. Design studios should consider a colour proofer – available from HP and Epson.

Multifunction devices: Companies such as HP and Lexmark offer all-in-one devices that include a printer, scanner, copier and fax. These save desk space, but aren't the best alternative at each of their functions.

Remember to find out the price of **consumables**. An inkjet can get through a cartridge in just a few months. Macworld tests for how many high-colour pages you'll get out of a cartridge, so check our product round-ups.

★★★/6.5	**Wireless Mouse**, Apple, *0800 039 1010*, £59. Bluetooth mouse. Lacks a scroll-wheel.	*Dec 2003*
★★★★/8.8	**Wireless Optical Ice White Desktop**, Microsoft, *0870 601 0100*, £89. Stylish wireless keyboard with wrist rest.	*June 2003*

PDAs

Personal digital assistants and related third-party hardware and software.

★★★★/8.0	**Clie PEG-NX70V**, Sony, *020 7365 2947*, £527. PDA offering stereo sound, and Memory Stick and CompactFlash slots.	*May 2003*
★★★★/7.5	**Tungsten E**, Palm, *0118 927 8700*, £149. Affordable, no-frills PDA with SD-card slot	*Expo 2003*
★★★★/8.7	**Tungsten T3**, Palm, *0118 927 8700*, £329. Bluetooth-compatible PDA with big screen and multimedia capabilities.	*Expo 2003*
★★★★/8.0	**Zire**, Palm, *0118 927 8700*, £88. Inexpensive PDA with rechargeable batteries.	*May 2003*

PRINTING

Inkjets, lasers, workgroup, thermal wax, dye sublimation, solid ink and software solutions.

All-in-one printer, scanner, copiers *(All prices include VAT).*

★★★★/8.9	**PSC 1205,** Hewlett-Packard, *08705 474 747*, £99. Compact, affordable, relatively fast all-in-one offers good quality photos.	*Sept 2003*
★★★★/8.9	**PSC 2175,** Hewlett-Packard, *08705 474 747*, £169. Fast all-in-one with six-ink option for even better photo quality.	*Sept 2003*
★★★/6.8	**Stylus CX3200**, Epson, *0800 200 546*, £149. All-in-one printing, scanning and faxing.	*Jan 2003*
★★★★/7.4	**x1150**, Lexmark, *0870 444 0044*, £79. Affordable, good-looking but very slow all-in-one.	*Sept 2003*
★★★★/8.2	**x5150**, Lexmark, *0870 444 0044*, £129. Affordable, good-looking but slow all-in-one.	*Sept 2003*

Consumer/entry-level pro *(All prices include VAT).*

★★★★/8.0	**450CBi,** Hewlett-Packard, *08705 474 747*, £249. Aimed at laptop owners, this printer is portable and versatile.	*Jan 2003*
★★★★/8.3	**DeskJet 5150**, Hewlett-Packard, *08705 474 747*, £89. A4 inkjet that excels at colour photos; optional six-colour cartridge.	*Nov 2003*
★★★★/8.9	**i450**, Canon, *08705 143 723*, £99. Low-price colour A4 inkjet that outputs great quality for the price.	*Sept 2003*
★★★★/8.6	**i470D**, Canon, *08705 143 723*, £179. A4 inkjet that outputs great quality, and includes memory-card reader.	*Sept 2003*
★★★★/8.9	**i6500**, Canon, *08705 143 723*, £339. Great A3+ photographic output, very fast and quiet.	*Sept 2003*
★★★★/7.9	**P706 Photo JetPrinter**, Lexmark, *0870 444 0044*, £69. Affordable but slow.	*Sept 2003*
★★★★★/9.0	**PhotoSmart 7350**, Hewlett-Packard, *08705 474 747*, £199. An A4 inkjet that uses PhotoRet IV technology to great effect.	*Oct 2002*
★★★★/8.0	**S750**, Canon, *08705 143 723*, £159. Colour A4 inkjet offering edge-to-edge printing and impressive photo results.	*Oct 2002*
★★★★/8.7	**S900**, Canon, *08705 143 723*, £329. Edge-to-edge colour A4 inkjet that's fast and outputs decent colour.	*Oct 2002*
★★★★/8.7	**S6300**, Canon, *08705 143 723*, £379. Colour A3+ inkjet offering easy-to-achieve colour accuracy and economic ink usage.	*Oct 2002*
★★★★/8.3	**Stylus C60**, Epson, *0800 200 546*, £79. This entry-level 1,400dpi model is slow – but offers stunning output for your money.	*Oct 2002*
★★★★★/9.0	**Stylus C42UX**, Epson, *0800 200 546*, £59. Slow, but offers spectacular colour quality for the price.	*Oct 2002*
★★★★/7.7	**Stylus C80**, Epson, *0800 200 546*, £149. Entry-level 2,800dpi model that uses pigment inks for better output on plain paper.	*Oct 2002*
★★★★/8.3	**Stylus Photo 890**, Epson, *0800 200 546*, £169. Quality edge-to-edge A4 colour inkjet that's also fast.	*Oct 2002*
★★★★/8.7	**Stylus Photo 895**, Epson, *0800 200 546*, £179. Same as the 890 but with extra features for digital photographers.	*Oct 2002*
★★★★/8.9	**Stylus Photo 830U**, Epson, *0800 200 546*, £99. A photo printer for £99 is a great deal – especially when output is outstanding.	*July 2003*
★★★★/8.1	**Stylus Photo 925,** Epson, *0800 200 546*, £249. Doesn't need a computer to print from memory cards.	*Jan 2003*
★★★★/8.6	**Stylus Photo 935,** Epson, *0800 200 546*, £229. Top-quality output, six-colour inks, standalone printing.	*Sept 2003*
★★★★★/9.0	**Stylus Photo 950**, Epson, *0800 200 546*, £379. The edge-to-edge A4 950 can print on CDs, and paper rolls. Classic only.	*Oct 2002*
★★★★★/9.0	**Stylus Photo 2100**, Epson, *0800 200 546*, £599. A3 2,880dpi seven-ink inkjet that offers flawless edge-to-edge colour output.	*Oct 2002*
★★★★/7.6	**Stylus Pro 7600**, Epson, *0800 200 546*, £2,814. Excellent image quality and print speed for a wide-bodied printer	*Feb 2003*
★★★/6.0	**Z65**, Lexmark, *0870 444 0044*, £129. Same unattractive build as the Z55 but with an extra paper-input tray.	*Oct 2002*
★★★★/8.2	**z705 Photo JetPrinter**, Lexmark, *0870 444 0044*, £59. Affordable but very slow.	*Sept 2003*

Professional *(All prices exclude VAT)*

A3 colour lasers

★★★★/7.1	**AcuLaser C8600PS**, Epson, *0800 200 546*, £3,879. Slow yet high-quality graphics-oriented A3+ colour laser.	*May 2003*
★★★★/8.8	**Elite Color 16,** GCC, *020 8380 6870*, £1,399. Bargain-priced, duplexing high-quality colour laser printer.	*Expo 2003*
★★★★/8.7	**C752n**, Lexmark, *0870 444 0044*, £1,879. A4 colour laser that offers decent-quality prints at a fair speed.	*Expo 2003*
★★★★/8.7	**C9500**, Oki, *0800 917 6015*, £4,869. Super-fast A3 laser ideal for the most demanding office environment.	*May 2003*
★★★★★/9.1	**CL30**, Xanté, *0870 742 0802*, £4,249. Feature-laden graphics A3 laser printer that is both speedy and well-priced.	*May 2003*
★★★★★/9.0	**PlateMaker 4**, Xanté, *0870 742 0802*, £4,499. Complex, quality mono laser printer for producing computer-to-plate plates.	*July 2003*
★★★★★/90	**Phaser 6250n**, Xerox, *0870 241 3245*, £1,609. Fast, affordable colour laser printer that offers excellent quality	*Expo 2003*
★★★★/8.4	**Phaser 7700**, Xerox, *0870 241 3245*, £5,520. Speedy, well-priced graphics A3 laser.	*May 2003*

A4 colour lasers

★★★★/8.1	**AcuLaser C1900PS**, Epson, *0800 200 546*, £1,029. Multi-pass model that does well on speed, quality and price.	*May 2003*
★★★★/8.0	**AcuLaser C4000PS**, Epson, *0800 200 546*, £1,749. Single-pass laser that offer great output, but at a high price.	*May 2003*
★★★★/8.3	**C750**, Lexmark, *08704 440 044*, £2,059. Ultra-speedy single-pass laser that's also economical on consumables.	*May 2003*
★★★★/7.7	**HL-4000CN**, Brother, *0845 606 0626*, £1,780. Competitively priced single-pass model.	*May 2003*
★★★★/8.1	**HP 2500**, HP, *08705 474 747*, £1,155. Affordable, if slow, multi-pass A4 that offers decent output.	*May 2003*
★★★★/7.3	**HP 4600**, HP, *08705 474 747*, £1,752. Reasonably priced single-pass A4 model.	*May 2003*
★★★★/8.0	**Magicolor 2350**, Minolta-QMS, *01784 442 255*, £849. High quality at a superb price, but rather slow.	*May 2003*
★★★★/7.3	**Magicolor 3100**, Minolta-QMS, *01784 442 255*, £1,795. A slightly overpriced single-pass laser printer that offers quality output.	*May 2003*
★★★★/8.0	**C5300n**, Oki, *0800 917 6015*, £1,069. Well-priced single-pass A4 laser that's both speedy and of high quality.	*May 2003*
★★★★/8.0	**C7500n**, Oki, *0800 917 6015*, £2,919. Speedy, feature-rich single-pass A4 laser.	*May 2003*
★★★★/7.7	**Phaser 6200n**, Xerox, *0870 241 3245*, £2,010. Speedy, if expensive, single-pass A4 printer.	*May 2003*
★★★★/7.7	**Phaser 8200**, Xerox, *0870 241 3245*, £1,610. Solid-ink single-pass A4 laser offers good quality and is also well-priced.	*May 2003*
★★★★/8.4	**AW 1200**, Xanté, *0870 742 0802*, £799. Inexpensive 1,200dpi mono A3+ laser printer.	*Oct 2002*

SCANNING

Consumer and professional scanners

Consumer/entry-level *(Prices include VAT. All models USB)*

★★★★/7.7	**Astra 6400,** Umax, *0870 906 4400,* £89. FireWire 600dpi A4 scanner with decent software bundle.	*Nov 2002*
★★★★/8.2	**CanoScan D2400UF**, Canon, *08705 143 723*, £219. 2,400dpi A4 scanner offering transparency adaptor.	*Nov 2002*
★★★★/8.0/8.1	**CanoScan LiDE 20 / 30**, Canon, *08705 143 723*, £59; £79. Ultra-thin entry-level 600dpi and 1,200dpi A4 scanners.	*Nov 2002*
★★★★/8.6	**IRISPen II Executive**, IRIS,@ Softline *01883 745 111,* £129. Cheap, accurate pen scanner that works with any application.	*May 2003*
★★★★/8.1	**Perfection 1260**, Epson, *0800 220 546,* £79. Basic 1,200dpi A4 scanner offering optional £45 transparency adaptor.	*Nov 2002*
★★★★/8.0x	**Perfection 1660 Photo**, Epson, *0800 220 546,* £169. 1,600dpi A4 scanner offering a decent software bundle.	*Nov 2002*
★★★★/8.6	**Perfection 2400 Photo**, Epson, *0800 220 546,* £199. Capable 2,400dpi A4 scanner with built-in transparency adaptor.	*Nov 2002*
★★★★★/9.0	**ScanJet 3500c**, HP, *0870 547 4747,* £79. Great-value OS X-compatible 1,200dpi model.	*Nov 2002*
★★★★/8.7	**ScanJet 3530c**, HP, *0870 547 4747,* £89. Same as 3500c, only offering an image-archiving function.	*Nov 2002*
★★★★/7.0	**ScanJet 8200,** HP, *0870 547 4747,* £449. 4,800dpi resolution; transparency adaptor; USB 2.0. Overpriced.	*Nov 2003*
★★★/6.8	**ScanJet 8250,** HP, *0870 547 4747,* £749. 4,800dpi resolution; transparency adaptor; USB 2.0; document feeder. Expensive.	*Nov 2003*

Professional

★★★★/7.2	**ArtixScan 1100,** Microtek, *01327 844 880,* £1,408. Overpriced SCSI-2, 1,000dpi, 42-bit A4 scanner.	*Expo 2002*
★★★★★/9.0	**ArtixScan 1800f,** Microtek, *01327 844 880,* £1,799. 1,800-x-3,600dpi A4 flatbed giving unbeatable scan quality .	*July 2003*
★★★★/8.3	**Expression 1680 Pro**, Epson, *0800 220 546,* £895. Quality USB/SCSI 1,600-x-3,200dpi, 48-bit A4 scanner, but lacking FireWire.	*Expo 2002*
★★★★/7.9	**Expression 1640XL Pro**, Epson, *0800 220 546,* £2,219. SCSI/USB 1,600-x-1,300dpi, 42-bit A3 model that lacks FireWire.	*Expo 2002*
★★★★/8.6	**PowerLook 3000,** Umax, *0870 906 4400,* £2,799. This super-expensive A4 model also offers a super-high resolution of 3,048dpi.	*Expo 2002*
★★★★/8.9	**PowerLook 1120,** Umax, *0870 906 4400,* £849. FireWire 1,200-x-2,400dpi, 42-bit A4 scanner offers great balance of features.	*Expo 2002*
★★★★/7.8	**PowerLook 2100XL,** Umax, *0870 906 4400,* £999. SCSI-2, 42-bit A3 scanner offers modest resolution of 800-x-1,600dpi.	*Expo 2002*
★★★★/7.0	**ScanJet 8290,** HP, *0870 547 4747,* £1,449. 4,800dpi; transparency adaptor; 25ppm document feeder; software is Windows-only.	*Nov 2003*
★★★★/8.8	**ScanMaker 9800XL** Microtek, *01327 844 880,* £1,748. FireWire/SCSI-2/USB 2.0, 1,600-x-1,300dpi, 48-bit A3 scanner.	

Film scanners *(All prices include VAT)*

★★★★/7.8	**SmartScan 2700,** SmartDisk, *01252 530 960,* £189. Easy to use, inexpensive 2,700-pixel USB film scanner.	*July 2003*
★★★/6.7	**SmartScan 3600,** SmartDisk, *01252 530 960,* £189. 3,600-pixel FireWire film scanner that suffers from limited dynamic range.	*July 2003*
★★★★/8.0	**Dimage Scan Dual III,** Minolta, *01908 200 400,* £299. 2,820dpi Film scanner offering excellent dynamic range and colour fidelity.	*July 2003*
★★★★/8.5	**Dimage Scan Elite II,** Minolta, *01908 200 400,* £549. 2,820dpi FireWire film scanner with Digital ICE and GEM technologies.	*July 2003*

STORAGE & UPGRADES

Hard drives, CD, DVD, removable solutions, servers, and processor-upgrade cards

Servers

★★★★/8.0	**Xserve,** Apple, from £2,399 including VAT. Apple's easy-to-manage enterprise server is well-placed to compete with PC solutions.	*Oct 2003*

Network Attached Storage

★★★★/8.5	**Max,** CMS, *01256 681 246,* from £1,999. Fast and robust storage that's easy to use.	*Jan 2003*

Hard drives

★★★★/8.2	**ABSplus,** CMS, *01256 681 246*, from £209. Portable FireWire backup solution.	*Jan 2003*
★★★★/8.8	**Big Disk 800,** LaCie, *020 7872 8000*, from £559. High-capacity FireWire 800 hard drives: 400GB (7,200rpm), 500GB (5,400rpm).	*Aug 2003*
★★★★/8.5	**Caviar WD2000,** Western Digital, @ Dabs, *www.westerndigital.com,* £201. Cheap, huge 200GB EIDE drive.	*June 2003*
★★★★/8.4	**Cobra 800,** EZQuest @ Channel Dynamics, *0870 60 70 540*, from £245. 7,200rpm FireWire 800 hard drive: 120/200/250GB.	*Aug 2003*
★★★★/8.5	**Crossfire 120GB,** SmartDisk, *01252 530 960*, from £153. FireWire/USB 2.0 hard drive. Compact, good software, but not too speedy.	*Expo 2003*
★★★★/8.3	**Desktop Hard Drive,** SmartDisk, *01252 530 960*, from £139. 7,200rpm FireWire hard drive: 80/120GB.	*April 2003*
★★★★/8.3	**Fire800,** WiebeTech @ Technical Earth, *020 8450 0303*, from £249. Reasonably priced 120/180/240GB. FireWire 800 drives.	*Aug 2003*
★★★★/8.5	**HDD 250,** Iomega, *www.iomega.co.uk*, £309. Fast 250GB FireWire hard-drive. Slow with USB 2.0, though.	*Expo 2003*
★★★★/8.8	**Ice Warrior 800,** Box Clever, *01525 240 188*, from £199. Affordable 120/200/250GB FireWire 800 hard drives.	*Aug 2003*
★★★★/8.6	**One Touch 250,** Maxtor, *01923 712 448*, £329. Attractive FireWire-only hard drive with decent software bundle.	*Expo 2003*
★★★★/8.4	**Personal Storage 5000,** Maxtor, *01923 716 105*, from £189. FireWire.USB backup solution.	*Jan 2003*
★★★★/8.0	**PowerPlay Pro,** SmartDisk, *01252 530 960*, from £59. Handy collar-clip-sized 64MB USB storage and music player.	*July 2003*
★★★★/8.4	**Rover,** SmartDisk, *01252 530 960*, £59. Radio-controlled USB slide-show remote-control with 32MB of storage	*July 2003*
★★★★/8.5	**The Kube 500GB,** Box Clever @ Mac & More, *01525 240 188*, from £599. 5,400rpm FireWire RAID hard drive. Also 400/240GB.	*May 2003*
★★★★/8.0	**Xserve RAID,** Apple, £8,999 including VAT. Impressive 2.52TB server-storage solution.	*Oct 2003*

External CD/DVD drives (all inc. VAT).

★★★★/8.5	**Bravo Disc Publisher**, Primera, *01789 415 898 or 0870 870 1220*, from £1,700. CD/DVD duplicator that also prints disc labels.	*Oct 2003*
★★★★/7.7	**Boa FireWire DVD-RW**, EZQuest @ Channel Dynamics, *0870 607 0540*, £317. DVD-R that offers solid performance.	*May 2003*
★★★★/8.6	**d2 FireWire DVD-Rewritable Drive**, LaCie, *020 7872 8000*, £304. Includes CaptyDVD 1 Mac DVD-authoring software.	*May 2003*
★★★★/8.6	**Devideon**, Formac, *020 8533 2489*, £304. DVD-R that includes Devideon 2 Mac DVD-authoring software.	*May 2003*
★★★★/7.4	**DVD Revo FireWire SuperDrive 4x**, Cyclone, @ CompuB, *0800 018 6625*, £363. DVD-R that offers solid performance.	*May 2003*

Card readers (all inc. VAT).

★★★★/7.9	**Media Reader,** Belkin, *00800 2235 5460*, £89 (inc. VAT). Multi-format storage-card reader for dock-equipped iPods.	*Expo 2003*

Upgrade cards (all inc. VAT).

★★★/6.9	**PowerForce G4 ZIF 550/220,** PowerLogix, *www.powerlogix.com (see Int'l),* £259. For beige G3, blue-&-white G3, pre-AGP G4	*March 2003*
★★★/6.8	**PowerForce G4 Series 100 1GHz,** PowerLogix, *www.powerlogix.com (see Int'l),* £630. AGP and Gb Ethernet PMG4s, Cube	*March 2003*
★★★/6.6	**PowerForce Dual G4 800MHz,** PowerLogix, *www.powerlogix.com (see Int'l),* £690. AGP and Gb Ethernet PMG4.	*March 2003*
★★★/6.5	**PowerForce Dual G4 1GHz,** PowerLogix, *www.powerlogix.com (see Int'l),* £1,030. AGP and Gb Ethernet PMG4.	*March 2003*
★★★★/7.5	**Encore/ZIF G4 500,** Sonnet, *www.sonettech.com (see Int'l),* £259. Beige G3, blue-&-white G3, Pre-AGP G4.	*March 2003*

If you need to get printed images into your Mac, but you don't have a digital camera or want to put your old photos on the Web, you need a scanner. Before buying a scanner you must consider the final output you're aiming for. If your job is for a glossy magazine, then a high-resolution drum scanner is what you need.

It's more likely, though, that that kind of scanning would be done by a pre-press house or a bureau. Some **high-end** flatbed scanners are actually approaching drum-scanner quality. Some professional scanners require a SCSI interface, so new Macs will require that a SCSI card be added. However, manufacturers are now adding FireWire and USB 2.0 interfaces to their top scanners.

You can buy a dedicated **slide scanner** or attach an optional slide tray to your flatbed. Some scanners have neat internal trays for ease of use.

If your needs are less great, there are many fair-quality **low-end** scanners at unbelievably cheap prices. Again, claims for quality are often based on resolution. Look at the optical resolution rather than the interpolated resolution, as interpolation is just a process of digitally enlarging the scan. Make sure that the connection (USB, SCSI or FireWire) is right for your Mac. Scanners often come with bundled software to let you manipulate the images once you have scanned them.

Hard drives: It's easy to add extra internal hard disks to Power Macs, but other Macs are better served with external drives. All new Macs come with FireWire connections, which are much faster than USB.
You can buy portable FireWire hard drives that you can carry around with you, and also larger, faster drives that sit on the desktop. Buy FireWire 800 drives if your Mac has this super-fast port. Go for the fastest rotational disk speed (measured in rpm), and divide the price by the number of gigabytes to find the price per GB. Buy as big as you can now, to save having to buy again later.
Removable disks: Apple has turned its back on the now defunct 1.4MB **floppy** (what do you think email is for?) but you can still add a USB floppy drive for about £60.

Zip drives are still used for backup. The 250MB Zip supports original 100MB disks, and the 750MB model reads and writes 750MB and 250MB disks, and reads all 100MB disks. Despite the convenience of the format, it 's relatively expensive and less popular now that most Macs have some kind of optical storage as standard.

Subscribers to Apple's .Mac services (£65 per year) get 100MB of **iDisk** Web storage space, which can be used to quickly move data around the world.

CD/DVD: Optical storage technologies (**CD-R**, **CD-RW**, **DVD-R** and **DVD-RAM**) have become increasingly viable alternatives as prices fall dramatically. While stable and cheap – a blank 650MB CD-R sells for 45p – writing to a CD or DVD-RAM can be slow. CD-R is a write-once technology. But, unlike Jaz and Zip disks, dishing out CDs to friends or clients isn't financially painful. Your best CD choice may be a CD-RW (rewriteable) drive, which is a CD-R drive with the added ability to handle rewriteable media.

DVDs can hold 5.2GB of data, and the drives can read standard CDs. Watch movies on your Mac and play the latest multimedia DVDs. SuperDrive Macs can record DVDs that will play in domestic players. Apple's **iDVD** tool makes Macs so much better than Windows PCs in this regard. **MW**

Andy Ihnatko

What's so special about the Mac's 20th birthday? Nothing, really…

Birthday baloney

'The moment we saw your smiling face for the first time, we knew that here was a platform that was different, revolutionary, ambitious; here was a computer that would go on to do great, great things.'

So! The Macintosh is 20 years old today. Well! Well, well, well! It's hard to get all worked up over a 20th birthday. It's a nice round number, but what does it really signify? It'll be different next year, of course. That's the big 21; the Macintosh will be able to legally drink in its home country. Even there, the milestone is a little underwhelming. Among his peer group, the Macintosh is definitely one of the Cool Kids who sneaks liquour out of his parents' garage. And thanks to his position in the creative graphic arts community, you're not going to tell me that the Mac doesn't have one hell of a good fake ID.

The Big Two-Oh is of greater interest to the Mac's family than to the Mac itself. Right about now, the Mac is listening to the last few lines of "Happy Birthday," sheepishly glancing around the table, not knowing where to look, hoping to just blow out the candles and get it over with.

Mom gets up to speak. "Oh, of course, every product line of ours is special," she begins, acknowledging the many beige, platinum, and funkadelic-coloured boxes seated around the table. "But the moment your release date arrived and we saw your smiling face for the first time, we knew that here was a platform that was different, revolutionary, ambitious; here was a computer that would go on to do great, great things."

A snort is heard from the corner of the table, but no one in the room wants to glance in Lisa's direction.

"Remember back when you were what, two, maybe three years old?" says an uncle. "It seems like a day didn't go by when you didn't come home crying. 'All the other kids in the catalogue keep calling me too expensive and underpowered!' or 'If I had the smallest software library of the whole Industry, you'd tell me, right?'

"Of course, we told you it was all nonsense, even though those other kids had it more or less on the money," he continues, helping himself to another slice of cake. "Made you into an arrogant little cuss – but hey, it convinced you to keep going out there and acting like a fully mature hardware platform, didn't it? All's well that yadda yadda yadda."

"But that didn't last forever, did it?" An aunt, this time. "When you finally hit, boy, did you hit! You created whole new markets! Nobody even *considered* moving all of a company's publishing jobs in-house before you stormed in there and just plain announced that you could handle it! "

Lisa is whispering something to the Apple ///+, who's nodding and brooding.

"And now, our Mac is the most popular, powerful and accessible Unix on the planet," Mom beams. "Mind you, when you came out to your Father and me as an open-source microkernel – even a partial one – we worried about you all over again. "

"It wasn't about *you*, " Dad rushes to say, earning an emphatic nod from Mom. "We were shocked about your new direction, of course, but we were more worried about people would treat you. People have so much hatred and fear about Unix. I know it's only due to ignorance, but that certainly didn't help the Dell's next door, when their Inspiron came back from college booting Linux. But we know that this wasn't your choice; Unix is how you were made, not how you were upgraded." Happy nods all around.

The Apple ///+ clears her throat.

"Indeed. What courage you displayed while you started your new life. But then, you've always been the courageous one, weren't you? I can't imagine that I would have had the same strength, through your... well, your troubles."

The temperature of the room dropped four degrees and the only sound was that of the family dog happily snarfing up the slice of cake that had dropped to the floor through fingers limp from shock.

"After all," the ///+ continues, brightening, "it was the Nineties. Who could blame you for becoming a licensed OS, renting yourself out for every and any company with a chequebook and an empty set of PROMs to shack up in."

"Yes, didn't you shack up with IBM for a while, too? Or am I thinking of that Advanced Technology Group project where you were running around on Intel hardware? "

"Mmm. Well, again, that's only to your credit," Lisa concludes, raising her glass. "That's all behind you and you're all the stronger for the tears that you – and our poor Mom and Dad – have shed. Here's to long life and happiness."

The party ends with a half-hearted clinking of glasses and an unspoken determination among all the individuals at the table that this year, Christmas will be spent at the houses of friends and in-laws.

So what does 20 years mean to we, the users? Nothin'. I'm happy to say it: nothing. 1989 was big news; the 5th-anniversary celebrations were so ambitious that my only clear recollections of it are of a cop eventually handing my wallet, belt, and shoes back to me in a big manila envelope and telling me I was free to go. Ten years was a little more subdued; I lost most of my blue/green vision for the better part of the week, but was still largely ambulatory.

Fifteen years was a quiet lunch with friends. Twenty years? I didn't even realize it until my editors reminded me. That's not a sign that our passion for the Mac has waned. It's a sign that survival is no longer a miracle. After 20 years of this, we're no longer the upstarts, the alternatives, the niche OS. We're here and barring one of those comic-book situations in which Superman's exposed to Red Kryptonite and there's a tremendous flash and all of a sudden there's a huge copper effigy of King George III where the Statue of Liberty used to be, the Macintosh isn't going anywhere. And that's cause for celebration any day. MW

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